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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered U. S. Patent Office.

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The SWITCH SHANTY

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RAILROADS NEAR 1935 RECORD

SIGNALING HAS BEEN A BIG AID

Of the nearly 450 million passengers carried on trains during 1935, not one fatality occurred through collision or derailment, and the same record has been repeated for the first seven months of 1937. And these records were made during periods when the speed of trains was being increased.

Of equal interest is the record of 130 Class I railroads having had no passenger fatalities in train accidents for five years or more; of the 114 having such a record for ten years or more; and of the 99 for fifteen years or more.

Such safety records would have been impossible of attainment without the aid of signaling.

Modern signaling is designed for high speed, safe train operation, and should never be permitted to restrict efficient train operation. Modern signaling is designed to keep trains moving, not to stop them. It is an important factor in making railroad travel the safest in the world.

WHAT VALUE NON-STOP MEETS?

"Our non-stop meets are so regular that they do not attract attention any more. Every engineman seems to think he should make non-stop meets. We recently had a day with 56 train movements—which has been our heavy day—although I noticed no excitement about it. You can imagine what it would have been if we were operating under the train order system." So writes one user of "Union" C. T. C.

"Union" Centralized Traffic Control is "the greatest development towards expediting train movements and reducing operating costs that we have seen in the last twenty-five years or more", writes another. Better investigate its possibilities on your road.

—o—

Many improvements have been made in agricultural implements, but wild oats are still sowed the same old way.

"A HOG FOR CARS"

Thus did one switchman describe "Union" Electro-Pneumatic Car Retarders, after five years of service. In this yard, during that period, more than 4,000,000 cars were humped, with a big drop in the cost per car handled. The installation eliminated congestion, increased the capacity of the yard, reduced engine hours, eliminated switching at other points, and increased safety of men, equipment and lading. Car retarders will effect similar results in all instances.

—o—

Look ahead, plan ahead, keep your head and you'll be ahead!
—Typographic

CAB SIGNALS BRING TRAINS THROUGH FOG

At a meeting of the New England Railroad Club last year, one of the speakers stated that in his territory they were accustomed to bad weather and that the fog is sometimes "so thick that you can cut a chunk out of it and throw it at the head brakeman". Under such conditions his road considers continuously controlled cab signals of such importance that they take precedence over everything else. He concluded his remarks with this prediction: "I believe the day will come when we will find the wayside signal thrown to one side and we will operate entirely with the cab signal."

Of course, "Union" Coded Continuous Cab Signals are in service on his road.

—o—

Progress always involves risks. You can't steal second base and keep one foot on first.

—o—

The man who works like a horse usually has a stable business.

ANOTHER SAFETY REPORT

"'If these do not stop motorists from running into trains, or stop them so the trains will not run them down, then nothing but a grade separation will save them. Thus did federal, state and Katy operating officials place their okay *** on seven of the new electrically operated safety signals just installed on our lines in Texas."

And the M. K. T. Employees Magazine voices the concensus of opinion about "Union" Flashing Light Highway Crossing Signals and auxiliary apparatus.

—o—

A danger signal can't talk, but it's not so dumb as the fellow who disregards it.

RAILWAY AGE

Labor and Competitive Problems Cannot Be Ignored

In weighing the possible future of the railroad industry, no circumstance is of greater importance than the obvious intelligence and public spirit of the chairmen of the Senate and House committees on interstate commerce—Senator Burton K. Wheeler and Congressman Clarence F. Lea. Probably not since the days of Esch and Cummings have both House and Senate committees been headed by men combining such ability with the earnest desire to do a constructive job in establishing the transportation industry on a sound basis in the interest of the nation as a whole.

Readers will recall the incumbency of the late Senator Couzens in the chairmanship of the Senate Committee in which, whatever his other virtues, he showed no interest whatsoever in dealing constructively with transportation problems. When Senator Wheeler succeeded to that position, there was for a long time little indication that the change was one for the better; or that he realized that he had a function to perform other than that of prosecutor. But certainly during the past year he has given evidence that he has awakened to the great responsibilities of his position, and that he desires to fulfill them.

Recognition of the public spirit and ability of these legislative chairmen, of course, implies no *a priori* agreement with specific proposals they may hereafter make with the purpose of removing some of the evils which plague the transportation industry. Indeed from the statement which Senator Wheeler gave out over last week-end, we believe it must be inferred that he seeks the cure to railway ills wholly by internal reforms—a position which will not withstand critical analysis. Some internal reforms may be advisable, of course, but *no amount of internal reorganization or increased efficiency could possibly equip the railroads, or any other industry, to withstand the competition of an unlimited public purse and unlimited demands backed by government for wages and working conditions completely disregarding the earning power of the industry.*

External Pressures Versus Internal Improvements

Now, when we make that statement, we know full well that the beneficiaries of subsidies from the public treasury and other governmental favors will accuse us of "whining" on behalf of the railroads. Defenders of the railroads are always pictured as calling for unwarranted restraints upon their competitors, as if they expected ill-merited salvation by the application of the kind of governmental favors which are, in fact, accorded to their competitors. Improvements within the railways are going on all the time—both in the quality of their service and in economy of operation. Unprofitable lines and other obsolete facilities are constantly being junked. Almost one-third of the railway mileage of the country is in the hands of the courts and, presumably, will emerge with the "scaling down of fixed charges" so loudly demanded by most critics of the railways.

In other words, practically all the steps which unfriendly critics insist the railroads must take in order to "clean house" and "save themselves" are being taken —with the exception, perhaps, of large-scale consolidation. Such consolidation, if its effects were wholly beneficial—a conclusion open to great doubt—would do no more than add to the sum total "reforms" already being steadily brought about, that is, improved efficiency of operation, improved capital structure, the abandonment of obsolete facilities. But *of what value is an increase in railway efficiency, or a "scaling down" of debt, or the abandonment of obsolete facilities when every such railway improvement is paralleled by an increase in government favors granted to railway rivals, or by further coercive restriction of the railways' power to compete, or by unwarranted increases in their operating expenses due to legislation or effective labor union pressure?*

Economic Theories That Disregard Facts

The present economic condition of the country is principally due to governmental policies emanating from persons who evolve and apply economic theories without first ascertaining the facts on which such theories should be based, and to business and labor leaders who strive to promote their own selfish interests equally regardless of economic principles and economic facts. The present plight of the railroads is principally due to the concentration of the activities of both these classes of persons on them. An ounce of economic fact is worth a ton of economic theory that is not based on facts, and most of the now widely accepted theories

concerning what is the matter with the railroads and what ought to be done about them completely disregard facts.

We publish herewith a table giving salient statistics regarding results of operation of the Class I railways

	Month of November			1937 compared with 1932	1937 compared with 1927
	1937	1932	1927		
Total Car Loadings	2,627,637	2,149,723	3,702,315	+22.2	−29.0
Gross Earnings...	$318,180,377	$250,743,761	$504,314,198	+26.9	−36.9
Operating Expenses	$249,295,347	$187,695,866	$377,167,016	+32.8	−33.9
Ratio of Oper. Exp. to Gross Earnings	78.35	74.86	74.79		
Taxes	$26,103,281	$19,390,108	$31,113,159	+34.6	−16.1
Equipment & Joint Facility Rentals..	$10,340,829	$10,182,339	$9,207,182	+ 1.5	+12.3
Net Oper. Income	$32,440,920	$33,396,308	$86,708,400	− 2.9	−62.0
Rev. Per Ton-Mile	0.909c	1.010c	1.087c	−10.0	−16.4
Rev. Per Pass. Mi.	1.794c	2.125c	2.877c	−15.6	−37.6
No. of Employees.	1,090,143	1,013,215	1,729,061	+ 7.6	−37.0
Total Wages.....	$165,465,000	$120,154,507	$239,809,138	+37.7	−31.0
Avg. Wage Per Hr.	75.2c	63.6c	65.4c	+18.2	+15.0

in November, 1927, before the depression began; in November, 1932, after three years of depression before the New Deal began; and in November, 1937, after four and one-half years of the New Deal, and after six months of the recent business recession had reduced railway traffic to about the basis on which it has been ever since. These figures will teach anybody who will study them more about the causes and remedies of the present railway situation than all the theorists and theories in the country can teach them.

The Real Causes of Railway Conditions

Net operating income is the part of their gross earnings the railways have left after paying their operating expenses and taxes. It determines the solvency or insolvency of each individual railroad and of the industry. It determines the power of the railroads to buy equipment and materials and thereby their power to keep their property in condition to render adequate and good service. Net operating income in November, 1937, was $32,441,000—about 3 per cent less than in November, 1932, and about $54,000,000 or 62 per cent less, than in November, 1927. The business of the country, including that of the railways, is represented by New Dealers as having been almost breathing its last gasp when the election occurred in November, 1932; and yet the railroads earned more net operating income in that month than five years later under the New Deal. Why? Their gross earnings were 27 per cent larger than in November, 1932; but their operating expenses were 33 per cent larger and their taxes 35 per cent larger. Government, of course, increased their taxes. Why had their operating expenses increased so much? The principal explanation is that the total wages paid by them were almost 38 per cent greater owing to increases of 7.6 per cent in their employees and of 18.2 per cent in their employees' average wage per hour. The rest of the explanation is that they were paying about 25 per cent higher prices for materials and fuel than in November, 1932. But this is not all. Their gross earnings did not increase more because their average revenue per ton-mile in November, 1937, was 10 per cent lower and their average revenue per passenger-mile 15.6 per cent lower than in November, 1932.

Why assume, without the support of evidence, that the condition of the industry is due to its internal management when within the last five years its average wage per hour has increased 18 per cent, the prices it is paying for materials and fuel 25 per cent and its taxes 35 per cent, while meantime the rates for its service have declined 10 to 16 per cent?

Who Can Criticize Railway Managements?

The contrasts between the figures for November, 1927, and November, 1937, are even more striking. Average wage per hour was 15 per cent higher than at the height of national prosperity ten years before, while average revenue per ton-mile was 16½ per cent lower and average revenue per passenger-mile 37.6 per cent lower. The number of employees was 37 per cent, or about 639,000, less; and in consequence, in spite of the increase in hourly wages, operating expenses were 34 per cent less. But, because of decline of both traffic and rates, gross earnings were almost 37 per cent less.

If any of these figures suggest criticism of internal management they are those showing that average wage per hour in November, 1937, was 15 per cent higher than in November, 1927, and 18 per cent higher than in November, 1932. If general business conditions and ability to pay should be considered in fixing wages, as the *Railway Age* certainly believes they should be, present railway wages, as well as those in most other industries, are wide open to criticism. But those who are now following the unfortunate example set by President Hoover eight years ago in urging industry to maintain wages in the teeth of a rapidly declining business are in no position to make the criticism. Furthermore, those who have used the power of government to curtail railway traffic and earnings by fostering unfair competition with them and forcing railway rates down to their present level are in no position to criticize railway managements either for the wages they are now paying or for any of the other alleged shortcomings of internal management to which some of their critics largely or principally attribute the present railway situation.

Creating More Railway Problems to Solve

To call attention to actual conditions is not "whining"; it is necessary realism. "Scale down fixed charges" to a fare-you-well, consolidate to the *n*th degree and the American public will still have a "railroad problem" on its hands, if handicaps, and favors to railway rivals, are heaped upon them to match, and more than match, whatever internal improvements they are able to make. That is to say, the railroad industry could be reorganized from top to bottom and placed

in the hands of the most competent managements in the land—and still its future would be uncertain as long as no one knows to what extent its rivals are to be assisted out of the public treasury; and as long as there is no limit to the exactions which its organized employees can make it *regardless of its ability to pay.*

There is no piecemeal solution possible of railroad difficulties, and no legislation which aims only at fostering reorganizations and encouraging consolidation can help them more than temporarily unless some assurance can be given that the benefits from such legislation are not to be cancelled out by donations to rival agencies of transportation and "make work" or wage increase concessions to organized railway labor.

Senator McAdoo has introduced bills in Congress to relieve intercoastal shipping from the necessity of paying Panama canal tolls, and also to provide direct subsidies to such shipping. How much railroad "reduction of fixed charges" and "consolidation" would be necessary to offset the harmful effect of the passage of such legislation upon the transcontinental railroads? Obviously no "reorganization" or internal economies the railway might adopt could possibly offset measures such as these, because their purpose is to *keep intercoastal shipping in a flourishing condition whether it is economical or not.* If the proposed operating subsidy of $2 per ton to shipping did not accomplish that result, its supporters would seek to increase that subsidy up to the point where it would counteract the superior economy of railroad transportation. Let the railroads improve their service and efficiency to any conceivable degree, and they still could not compete against the kind of treatment which Senator McAdoo has in store for them.

Nullifying Effect of Internal Economies

Similarly with the demands of organized railway labor: If the unconscionable train-limit bill should become a law, would that be the end of similar racketeering legislation? Obviously not—because there is still a 6-hour-a-day bill and a so-called "full crew" measure at the unions' disposal, and they could doubtless think up other such measures. How much "scaling down" or "consolidation" would be needed in order to offset the cost of such legislation? Obviously, there is no answer to that question, because no one can tell how much of such legislation there will be. Similarly, no one can predict to what extent internal economies, however great they may be, can be of any net value to the railroad industry as long as the wage levels accorded to railway labor are to bear no relationship to the railroads' ability to pay.

We have, as we said in effect at the outset, faith in both the ability and good intentions of the chairman of the Congressional committees which deal with railways. They are faced with a big problem, however, and one which they cannot solve in a piecemeal fashion by legislation dealing with railway organization and finance alone. Unless subsidies and artificial aids to railway competitors are included in their calculations; and unless they can inspire statesmanship on the part of the leaders of organized labor, or otherwise prevent them from absorbing the benefits of increased railway efficiency faster than efficiency can possibly be increased, then legislative succor for the railroads will be a mere palliative, with no lasting benefits.

Indexes to Volume 103

The indexes to the latest volume of the *Railway Age,* July to December, 1937, are now ready for distribution and copies may be had by those subscribers desiring them. Requests should be addressed to the Circulation Department, *Railway Age,* 30 Church Street, New York. Subscribers who have in previous years made application for the index need not apply again; they will continue to receive it as long as they continue to subscribe.

Everybody Has an Interest in Railroad Recovery

Events in recent months have centered attention on the financial position of the railroads and the urgent need for the adoption of corrective measures. It is no exaggeration to say that the plight of the railroads of the United States has become one of our most important and pressing national problems. Failure to meet the situation in the thoroughgoing manner that the occasion demands would be followed by consequences more serious and far-reaching than is generally realized. . . .

Railway transportation is a vitally essential public service and cannot be properly performed by companies that are continually threatened with insolvency and that cannot raise the capital required for efficient operation. The railroads are among the largest customers of other branches of business, consuming, among countless other things, 23 per cent of the bituminous coal mined in the country, 19 per cent of the fuel oil, 17 per cent of the iron and steel, and 20 per cent of the timber. Directly and indirectly, they provide employment for millions of workers. They are among the largest taxpayers.

Their securities affect the safety of the savings of every bank depositor and every life insurance policyholder, comprising a majority of our population. Their credit is essential to the accumulation and investment of the capital without which economic progress is impossible. Finally, the maintenance of their service and their credit is an indispensable safeguard against the waste and inefficiency of government ownership and operation.

Financial rehabilitation of the railroads has become a necessary condition of business recovery, and a point has been reached where only decisive public action can meet the need.

—From the Monthly Survey of the Guaranty Trust Co., N. Y.

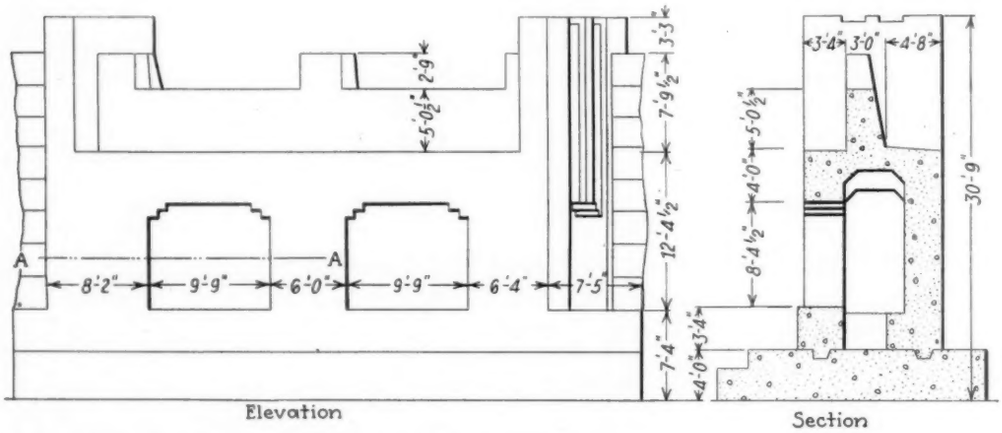
The Structure Presents an Attractive Appearance

Less Expensive Plan Presents Better Appearance

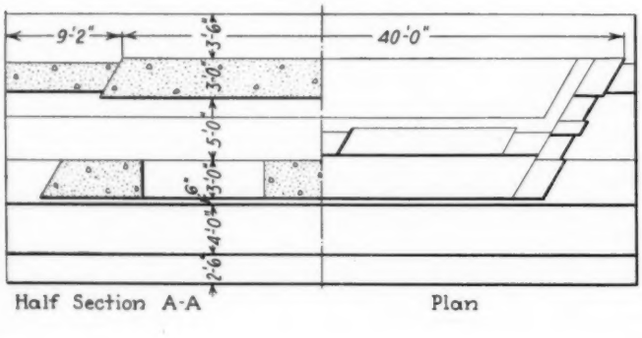
Esthetic considerations influence selection of design for grade separation structure for Toledo Terminal

THE influence of esthetics on the design of grade separation structures built since federal funds have been made available for such projects, is illustrated in a bridge recently built to carry a track of the Toledo Terminal over Canal boulevard in Toledo, Ohio. Canal boulevard, or Anthony Wayne highway, as it is now known, is a new high-speed traffic-way extending in a southwesterly direction from the heart of the city, with a 60-ft. pavement and flanking walls, the general character of the improvement being such that considerable emphasis has been placed on the appearance of all structures involved in the improvement.

The railroad at the crossing is on a 3 deg. 36 min. curve, which intersects the axis of the boulevard at an angle of 59 deg. 7 min. so that the length of the span over the 60-ft. roadway is 75 ft., center to center of



General Details of the Abutment



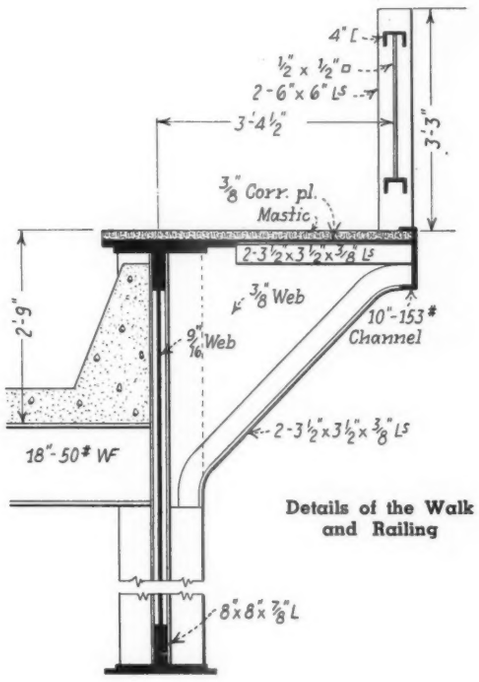
bearings. For a part of its length, including the site of the grade separation, Canal boulevard occupies the right-of-way of the abandoned Miami and Erie canal, which the railroad crossed on a single-track, deck plate girder swing span. As the canal prism was neither deep enough nor wide enough to accommodate the highway, considerable excavation was necessary to effect the required separation of grades. However, in establishing the highway grade, the roadway was depressed sufficiently so that, with a track raise of 6 in., the total

separation amounted to 21 ft. 6 in., or an excess of 7 ft. 6 in. over the 14-ft. clear headroom demanded.

The foundation material at the site, blue clay with small amounts of sand, is similar to that encountered elsewhere in the vicinity of Toledo. Loading tests indicated a safe bearing pressure of about 6,000 lb. per sq. ft., if the design of the substructure was such as not to impose appreciable eccentricity of loading.

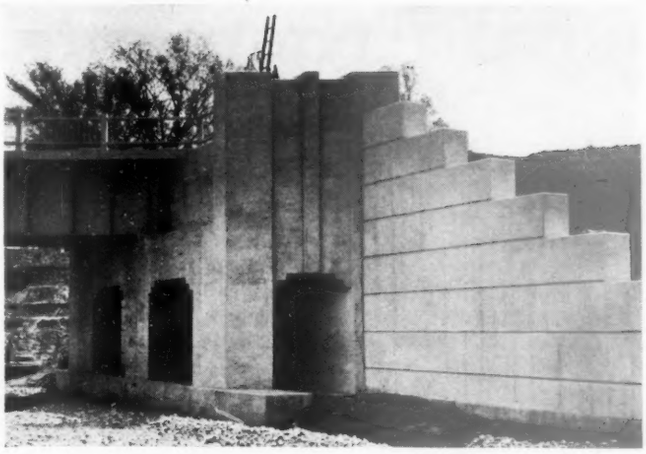
Study Various Designs

Sketch layouts and estimates were made of a number of types of structures that would meet the physical conditions imposed. Some consideration was given to rigid-frame construction, but it was seriously questioned whether a design of that type could be applied without resort to pile foundations, and as a simple-span steel plate girder design was entirely feasible with the floor depth available, major consideration was accorded the latter alternative. The first plan considered called for three spans of girders, with steel columns at the curb lines, but owing to the apparent adaptability of the box-type abutment in this location, studies were made also of a design embodying a steel girder roadway span supported at each end on a structure in which the sidewalk span, curb pier, abutment wall and a continuous footing are incorporated in a rigid-frame, reinforced-concrete box.



Details of the Walk and Railing

Estimates of the cost of a single-track structure built according to these two designs, showed a savings of about $2,000, or approximately 6 per cent of the total estimated outlay for the structure alone, excluding those elements of the project that would not be influenced by these differences in design. As the box-abutment plan entails the completion of the abutments for two tracks in the initial construction, a further saving of $2,300 will be realized when the bridge is completed for a second track, or about 21 per cent of the cost of the additional girders, floor and curb columns required for the three-span type of bridge. However, the adoption of the box-abutment plan was influenced also by the conclusion, based on a study of elevations and perspective sketches of the two designs, that it would present a much more attractive appearance.



A View of One of the Abutments

As built, the structure embodies two abutments, constructed for double track but supporting a single-track superstructure. The latter is a steel girder span of the half-through type, with girders spaced 11 ft. 3 in. center to center. The abutments, which provide sidewalk passages 5 ft. wide, have a base width of 21 ft. 6 in., of which only 6 ft. 9 in. is embraced in the toe extension of the footing. The computed maximum foundation pressure was kept well within the capacity indicated by the loading tests.

Concrete Slab Deck

The floor consists of 18-in. 50-lb. wide-flange beams placed 2 ft. center to center with their tops 2 ft. 9 in. below the tops of the girders. These beams support a reinforced concrete floor slab with curbs on each side that extend up under the top flange angles of the girders. The floor slab is 9 in. thick at the center of the span and tapers to 6 in. at each end where it extends over the tops of the abutment back walls.

The slab is covered with a 3-ply coal-tar pitch membrane waterproofing, protected by asphalt mastic on the horizontal surface and by asphalt plank against the curbs. The backs of the abutments and wings are covered with a damp proofing preparation. One of the girders is

(*Continued on page 266*)

Light Grey Paint Adds to the Appearance of the Hand Railing

Oral Arguments in Ex Parte 123

Program calls for presentations by more than 100 counsel at sessions extending over nine days

WASHINGTON, D. C.

ORAL arguments in the Ex Parte 123 rate-increase case got under way before the Interstate Commerce Commission at Washington, D. C., on January 31 with J. M. Souby, assistant general counsel of the Association of American Railroads, opening a program which contemplates presentations by more than 100 other counsel at sessions extending over nine days. Thus the present schedule calls for completion of the arguments on February 9, which is also the deadline for the filing of briefs—the day on which the case will stand submitted.

Making the general plea on behalf of the applicant carriers, Mr. Souby asserted that "the gravity of the present financial situation of the railroads is such as hardly to be susceptible of overstatement." He urged the commission not to "temporize with the situation again" and grant only part of what is sought; for even the whole amount asked would not "put us in the clear", although it would be "a step in the right direction." Other railroad counsel were E. H. Burgess, general solicitor of the Lehigh Valley, who made a special plea in connection with anthracite rates and J. Aronson, vice-president of the New York Central, who defended the proposed 25 per cent increase in Eastern coach fares. Judge R. V. Fletcher, A. A. R. vice-president and general counsel, is expected to make a final rebuttal argument for the railroads.

Fare Argument Brings Questions From Bench

All eleven commissioners were sitting, and while here and there a question was asked of other counsel, it was at Mr. Aronson that the principal barrage from the bench was directed. At one point the New York Central vice-president stated that he did not intend to reargue the passenger-fare case and suggested that it be assumed that the "wisdom, foresight and crystal gazing" of the commission in that case was entirely sound. He added, however, that much has happened on the railroads since that time; and if two cents a mile was right in the "depth of the depression" then "something more than two cents" is right now.

Among those following Mr. Souby were Luther M. Walter, co-trustee of the Chicago Great Western, who re-asserted his complaints in connection with wage costs, present divisions and refrigerator-car rentals, and again explained and defended his pooling proposal; John E. Benton, counsel for the National Association of Railroad and Utilities Commissioners, who opposed rate increases and advocated consolidations in the interests of economy; and H. L. Bode, representing the state of North Dakota, who argued against increases on agricultural products and asserted that the 1933 change in section 15(a) of the Interstate Commerce Act eliminated any I. C. C. power to fix rates on the basis of revenue needs of the carriers.

Mr. Souby opened his argument with a review of the scope of the petition, pointing out how the proposed 15 per cent increase in freight rates is sought for general application, except that on "four rather important commodity groups"—coal and coke, lumber, sugar, and fruits and vegetables—"certain maximum increases are specified." Also, the 15 per cent boost would apply to all tariff charges for accessorial services with the exception of charges for protective service to perishable freight. The petition's passenger-fare proposal, he added, is limited to Eastern territory where an increase in coach rates from two cents a mile to two and one-half cents is sought.

A General Revenue Case

The case Mr. Souby characterized as "one of those familiar but nevertheless extraordinary proceedings which have come to be known as general revenue cases, because they have their basis in a need of all the railroads in the country, or all the roads in a given section of the country, for increased revenue." In the present case the need is nationwide, "although, to be sure, the exact measure of the need is not the same in each of the three districts."

This need, Mr. Souby went on, is ascribable to two distinct influences that have been developing more or less steadily over a period of years—increasing costs of operation on the one hand and declining unit revenues on the other. "Although diametrically opposite in character," he continued, "both of these influences obviously work toward precisely the same end, and their combined result has been to bring about a narrowing of the spread between railroad revenues and railroad operating costs practically to the vanishing point in the case of many roads, and far beyond the safety point in the case of the roads as a whole."

The increases in operating costs, the A. A. R. assistant general counsel next explained, are the result of increases in prices, in taxes and in the wages of railroad labor. The decline in unit revenue is due "to the thousand-and-one things that seem to be always operating to bring about that result." While in the latter connection he found it impossible to cite "all the various causes", Mr. Souby listed competitive reductions; reductions to aid some depressed industry, "usually intended to be only temporary, but rarely cancelled"; temporary reductions for drought relief; downward readjustments to remove claimed discriminations; reductions required by orders of the commission; and shifts in tonnage of the various classes of traffic handled. All of which adds up to leave "no room for doubt that the general rate level has been declining since 1923 and particularly since 1929." The drop in ton-mile earnings since the latter date has been 12.8 per cent.

Would Restore 1930 Rate Level

The proposed increases would not restore all of the latter decline, but would put the level back where it was in 1930, which "by the way, is just about where wholesale commodity prices stood at the close of 1937." The proposed increase in Eastern passenger fares would put the passenger-mile earnings back to the level of 1933.

The railroads, however, wish "particularly to emphasize" that they have not presented their case "on the theory that the financial condition in which they now find themselves, critical though it is, constitutes an emergency in the rather technical sense in which the commission seems to have used the term in considering various proposed general rate increases heretofore, that is as connoting something of sudden and perhaps unforeseen occurrence, of temporary character, and consequently calling for only temporary relief." The present condition of the railroads, Mr. Souby declared, "is far too deep-seated and the circumstances that have induced it far too enduring to bring the situation within that definition. Their trouble has lasted too long to be regarded as anything but chronic." And recent developments "have not changed either the fundamental nature of the trouble or the enduring quality of the relief which it requires"—they have "merely served to bring it to a crisis and make immediate relief imperative."

Petition Ignored Current Recession

Unfortunate as is the present recession, Mr. Souby suggested that "it will be still more unfortunate if it is permitted to obscure the real, fundamental trouble which lies at the bottom of the present railroad situation and to influence the commission again to deal with this trouble on the theory that it is only a temporary condition that can be expected to right itself with a resumption of improvement in general business activity." The railroads, "so far as it has been possible to do so, have ignored the recent recession in the presentation of their case; this for two reasons—because it had nothing to do with the filing of the application, and because railroad executives regard the slump "as reflecting only a temporary slackening of business activity, which they hope to see revived by the latter part of this year." This, Mr. Souby conceded, "may be a case of wishful thinking," but he refrained from comment "on what the situation of the railroads will be if their guess proves wrong."

The narrowing spread between costs and revenues, Mr. Souby again emphasized, is "the fundamental theory underlying the case as presented by the railroads." This situation, he asserted, is not the outgrowth of the current recession or the major depression. He continued to quote figures presented by Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, to show "why the railroads have been unable, since the low point of the depression, to show an improvement in their net operating income more nearly commensurate with the rather slow but nevertheless marked improvement in their gross." Further citations from Dr. Parmelee's testimony and exhibits brought Mr. Souby to the conclusion that "We are confronted with the fact, undisputed on this record, that unless these railroads secure increases in their rates and fares, the best they can hope for from a normal years' traffic will be a net railway operating income of about $365,000,000 to apply against fixed charges ranging around $650,000,000."

The proposed freight-rate increases, he went on, are estimated to yield about $437,000,000 a year on the basis of 1936 traffic; the Eastern passenger-fare increase would bring another $30,000,000. With both of these it is estimated that the railroads would earn a net railway operating income of about $783,000,000 on the basis of 1936 business. That would be 3.01 per cent on property investment and 3.915 per cent on a valuation of $20,000,000,000, a figure which Mr. Souby mentioned because he did not believe that anyone "could seriously contend for a value lower than that on the basis of the figures that have been put into the record by the commission." Thus the carriers are confident that the commission "will not feel called upon to make any definite determination of the value of the properties of these railroads in disposing of this application."

Increases Won't Divert Traffic

Turning to the question of the reasonableness of the rates proposed, Mr. Souby pointed out that the carriers are not asking any finding in that connection—all they seek is approval of the general proposal, and any resulting rate will be subject to investigation as to its reasonableness. The A. A. R. assistant general counsel did not think there is any dissent from the proposition that the railroads are giving better service than ever before; and the passenger service is at a lower price than ever before. He cited the testimony of shippers favoring the railroad proposal as an indication that the higher rates would not drive traffic away; and other shippers threatening diversions, he suggested, were not complaining "of something that isn't going to hurt them—they expect to have to pay the rates."

Commissioner Eastman asked what had been done about past I. C. C. suggestions that the railroads come forward with proposals to increase sub-normal rates, and Mr. Souby replied that such was attempted in the Ex Parte 115 application.

General Solicitor Burgess of the Lehigh Valley opened his argument on behalf of nine anthracite originating carriers with the assertion that everything said in support of the general application applies also to those roads. They are the Central of New Jersey, Delaware & Hudson, Lehigh & New England, Lehigh Valley, New York, Ontario & Western, New York, Susquehanna & Western and Reading; he did not include the Pennsylvania because, although it originates a large amount of anthracite, that traffic accounts for only about 4 per cent of its total. On the nine roads listed anthracite represents 35 per cent of the tonnage.

Anthracite Roads Got Nothing in Ex Parte 115

Because nothing was done for them in Ex Parte 115, Mr. Burgess said, these anthracite roads "felt impelled" to make a separate Ex Parte 123 presentation—not because they seek anything special, but to avoid special treatment in the form of a denial. The effect of the maximum proposed, he went on, would be to make the increase in anthracite rates only 9.5 per cent on a weighted average basis. Asked by Commissioner Aitchison what his clients proposed to do about anthracite rates not now up to maximums permitted by commission orders, Mr. Burgess replied that the anthracite roads' proposal is based on rates as they now stand. He conceded that there might be increases along the line indicated by Commissioner Aitchison, but explained that producers, while opposing any increase, would favor the method proposed if an increase is to be made.

Mr. Burgess continued to quote statistics indicating that the anthracite roads are in a worse plight than roads in the Eastern district as a whole. They present a "disheartening record" with respect to deficits since 1929; and seven of the nine are in that "deplorable condition" at present.

Turning to the protests of the anthracite industry, Mr. Burgess found that industry's present plight the result of a failure to bestir itself to meet the effects of a "healthy, normal competition." Its avenue of escape, he continued, is modernization in production and use; and he noted that automatic stokers are now being pro-

moted to meet the public demand for automatic heat. Commissioner Eastman asked if the railroads haven't been "pretty close to that industry" and Mr. Burgess replied that since 1920 the relationship has been "at arms length." He was unable to answer Mr. Eastman's next question as to how long ago it was that the Baltimore & Ohio invested in the bonds of the Philadelphia & Reading Coal & Iron Company.

Eastern Passenger Business No "By-Product"

Mr. Aronson launched his argument on behalf of the passenger fare increase with the assertion that passenger business in the East is "not by any means a by-product"; there it constitutes one of the important traffic elements. Opening questions from the bench related to the revenue results of the fare cut, in which connection Mr. Aronson cited exhibits introduced by A. F. White, assistant director of the I. C. C. Bureau of Statistics; he was unable to cite for Commissioner Eastman any figures of records which the railroads had compiled. Reminding Mr. Aronson that the railroads had launched a court test of the passenger-fare order, Commissioner Aitchison asked what steps had been taken to bolster the allegation that the order was confiscatory. Mr. Aronson replied that it was the plan to rely on the commission's order and report in the case. In the course of further discussion with the bench on the results of the fare cut, Mr. Aronson suggested that it is "a non sequitur to credit all the increase in gross passenger revenues to the rate reduction."

Continuing to a discussion of the relationship between coach and Pullman rates, Mr. Aronson called the one-cent differential "unhealthy and unwholesome." Whereupon Commissioner Eastman wanted to know if it were any more unhealthy in the East than in the South and West; and Mr. Aronson replied that conditions and the character of the traffic were different. When counsel next cited what he conceived to be a lack of public opposition to the fare boost, Commissioner Porter called his attention to the presentation of J. G. Daly who appeared to protest on behalf of the United Commercial Travelers of America. Mr. Aronson replied that while Mr. Daly "undertook to speak for thousands" of travelers, he did not establish any authority (other than his official position) to speak for anyone but himself.

Thus Mr. Aronson again suggested that the commission assume that lack of substantial opposition indicated public acquiescence in the fare-increase proposal. But Commissioner Eastman suggested that the railroads wouldn't want rate cases decided on the basis of whether the public is for or against them; and Commissioner Porter asked if, in determining the public attitude, the commission should consider the letters it had received in opposition to the increase in fares. Mr. Aronson replied in the negative to both and there followed a bit of by-play on letters which had been received by the commission and whether or not they were "inspired." Commissioner Aitchison said that such letters simply meant more work in his office—his colleagues "didn't get the benefit of them."

"Managerial Discretion"—An "Almost Forgotten Thing"

In closing Mr. Aronson referred to that "almost forgotten thing" called "managerial discretion" and suggested that the commission should take note of the "unanimous" testimony to the effect that the fare increase would produce additional revenues. But Commissioner Porter held that the testimony in that connection wasn't unanimous, as he recalled that President Daniel Willard of the B. & O. had said that he didn't expect to get any additional revenue. Mr. Aronson replied that the B. & O. is an applicant in the passenger-fare phase of the case, along with all the other Eastern carriers. If those carriers are permitted to exercise their judgment, he added, "the blood is on their heads—not yours."

Douglas Smith, appearing for the Railroad Security Owners' Association, reviewed the testimony and exhibit evidence put in by witnesses for that organization and suggested the need for a public understanding of the fact that increased costs mean increased rates. The commission, he said, has no mandate to hold costs of transportation at the lowest possible level—it has a mandate to maintain an adequate transportation system. His discussion of the increases in wages was interrupted by Commissioner Eastman who wanted to know what "government compulsion" was involved. Mr. Smith said that the carriers were faced with the alternative of granting increases costing $135,000,000 a year or perhaps being maneuvered into granting something more, although he did agree with Mr. Eastman that carriers had it within their power to say "No." At another point Mr. Eastman suggested that the matter of sub-normal rates is something railroad investors "might well look into."

As Mr. Smith saw the situation, nothing could be further from the truth than the idea that the carriers are seeking some bounty from the government. The question, he added, is not whether life is to be granted to the railroad industry, but rather whether its life is to be "a forfeit to regulation."

Co-trustee Walter of the C. G. W. spoke only for himself as he proceeded to explain again his pooling plan, which he called "merely a suggestion" as to how increases might be distributed. Asked by Commissioner Eastman how he would enforce the pooling, Mr. Walter thought the railroads would consent. He has heard that "you can't get the C. & O. to go along" but he doesn't think the C. & O. is going to tell the commission "to go to hell in a handbasket." That road, Mr. Walter continued, has been built up on rates that were the measure of the needs of other less favorably situated roads. He went on to say that a lot of water has gone over the dam since the previous pooling plan, and he hopes that if the railroads say "No" to a new proposal along such lines, the commission has "got the backbone" to refuse the increase.

"Socialism" Cry a "Soft Impeachment" of Pooling

In lieu of pooling all revenues, Mr. Walter suggested an alternative plan limited to revenues from joint rates. He pointed out in this connection that Justice Brandeis had said in the New England divisions case that the entire amount of the increase could have been turned over to the New England roads. The cry of socialism was called by Mr. Walter a "soft impeachment" today; and he asked "what is socialism, properly applied," except that we give up something for the common good. He thought no railroad executive would refuse to go along with a plan to help his industry.

Commissioner Eastman asked why the other C. G. W. trustee—Patrick H. Joyce—did not go along with the pooling idea. After expressing the wish that Mr. Joyce were present to answer, Mr. Walter continued to say that his co-trustee had been president of the C. G. W. and "expects to continue in the business." He believes, however, that if the present divisions and refrigerator car rentals are not adjusted, Mr. Joyce "will

be standing side-by-side with me." At present, however, Mr. Joyce does not join in Mr. Walter's expressions as to labor or pooling. Asked by Commissioner Caskie why he would not pool all revenues, Mr. Walter replied that such a plan would take the "competitive spirit" out of the industry. Nevertheless he insisted that some special plan is necessary for the allocation of any increased revenues, since otherwise the public cannot be sure that "it is not going to make the fat pig fatter in order to give the hungry runt enough to live on."

On the wage question Mr. Walter thought that management might have found some justification for the increase granted last August to the non-operating employees; but he saw no basis on which to justify the increase given operating employees in the face of conditions prevailing last October. He would like to see the commission give consideration to recommending to Congress legislation to protect railroads from exorbitant wage demands. Labor, he said, should not use "brute force" to take from those who think that if they give they can recoup from the public. Railroad management, he added, fell down last year when it failed to remain steadfast in its refusal to meet the employees' demands.

Water Carriers and Truckers

N. D. Belnap appeared briefly to support the application on behalf of the government-owned Inland Waterways Corporation and other water carriers. He was followed by Charles E. Cotterill, counsel for the Middle Atlantic States Motor Carrier Conference, who asked the commission to grant all increases sought by the railroads, and to trust the truckers to bring their rate-cutting minority around to the co-operative point of view in the interest of order in the industry. Mr. Cotterill had previously discussed various courses which had been urged upon the commission, such as pooling and the granting of less than the increases sought. Such suggestions, he thought, might have some point if the railroads were seeking a 25 per cent increase, but a 15 per cent increase would be so absorbed in paying fixed charges and other pressing obligations that "if there emerges a dollar of dividend on common stock, a miracle will truly have come to pass."

A 15 per cent boost, he continued, would give no railroad save the Pocahontas lines, an excessive return; and the problem with respect to the Pocahontas lines has never been one of high rates—their rates are too low relative to those of their competitors, whom they have "drained." Mr. Cotterill was here checked by Commissioner Aitchison who could not understand what the Pocahontas situation had to do with the Middle Atlantic States Motor Carrier Conference. Whereupon Mr. Cotterill concluded the discussion with the explanation that he spoke thus only because of the suggestions that the increase should be cut down because of the benefits it would bring to already-prosperous Pocahontas roads.

Sees Solution in Consolidations

Mr. Benton for the National Association of Railroad and Utilities Commissioners maintained that if the time has come when the railroads as set up at present cannot operate without raising rates, then the time has come for consolidation in the interests of economy. He conceded to Commissioner Aitchison that some of the state commissions may be opposing consolidation, although he had not been instructed to take such a stand. Under rate levels already authorized, Mr. Benton went on, the carriers are unable to hold traffic to the rails; and he thought it was "easy to see" what the plan now is—the motor carriers controlled by the railroads and those allied with the railroads have joined to increase their rates in line with higher rail charges.

He could not name for Commissioner Rogers any trucker in either of these two categories, but he nevertheless held to the view that the commission is being asked to put its approval on a "conspiracy." And he thinks it should hesitate before approving a policy "compelling motor carriers not to compete with the railroads." Mr. Benton wondered how long the Motor Carrier Act would remain on the statute books if the public "which built the highways" doesn't get the benefit of "cheap motor transportation" on them.

Mr. Benton drew a laugh when he replied, "No, but I'm going to talk about it" to Commissioner Eastman's inquiry as to whether he knew anything about the financial condition of motor carriers. He contended that he didn't have to know anything about the specific situation to lay down principles. In closing Mr. Benton read extracts from the editorial entitled "Consolidation the Solution" which appeared in the January 15 issue of Traffic World. That magazine, he characterized as "not anti-railroad," adding that he knew of no rate increase in years past which it didn't favor. In a final question Commissioner Eastman asked what had been the attitude of the state commissions toward continuance of the co-ordinator statute which was "aimed at competitive wastes." Mr. Benton replied that no position was taken —the state commissions did not get into the matter at all.

Says 1933 Amendments Ended "Revenue" Rates

Mr. Bode, speaking for South Dakota, asked the commission to refuse to vacate any maximum rate orders holding, rates on livestock, grain and grain products, packing house products and other foods. Proposed increases on agricultural products, he said, would bring additional freight charges of $100,000,000 a year, which would be a "direct charge upon the purchasing power of agriculture." He went on to develop his argument in connection with the 1933 change in section 15(a). The alteration in the rule of rate-making which accompanied recapture repeal, he contended, eliminated any revenue rates. Congress, he asserted, "took away from you your rate-making powers"—when it got through with 15(a) the commission had no such powers left. The change, he went on, left upon the carriers the burden of proof to justify increases under other sections; and agriculture can't be protected unless proposals with respect to it are measured by the reasonableness standards of section 1.

Mr. Bode was followed in turn by Neal E. Williams and J. C. Winter who divided North Dakota's alloted time between them. They opposed particularly any increases in grain rates, while J. W. Bonner, speaking for Montana, contended that his state could not absorb additional freight charges, and also expressed the view that the result of increases would be to deplete railroad revenues.

J. G. Bruce, in voicing Idaho's opposition, expressed the belief that increased rail rates will force more shippers to resort to truck transportation and suggested that railroad salaries are too high. In the latter connection he told Commissioner Aitchison that he had made no computation to determine what effect the elimination of all railway-officer salaries would have on the rate structure. Speaking for Utah, Charles A. Root asserted that the railroads as a group "are the most extravagantly

wasteful industry in America." He had previously said that the carriers are better situated than any other group to help themselves and that they are not as badly off as their statistical presentations indicate. Mr. Root was followed in turn by H. W. Oehler of Minnesota, E. R. Sloan of Kansas and Stanley Winborne and G. H. Noah of North Carolina.

Hits Publicity Build-Up

Then came R. C. Fulbright, counsel for the Southern Pine Association, to make the opening argument in connection with lumber rates. Mr. Fulbright could not "resist the temptation" to pay his respects "to the great campaign of publicity waged in connection with this case." It was the first time within his experience that the railroads "had attempted to try a case" in the newspapers and magazines. The build-up, Mr. Fulbright continued, "was even provocative of statements from the White House," although in that connection he did not think the carriers cared much for the suggestion that if a railroad is worth only $100,000,000 it is not entitled to earn a return on $200,000,000. He did not know who inspired the publicity, but he would like to know its cost.

Mr. Fulbright continued to criticise railroad cost comparisons, claiming that in 1937 the cost of materials and supplies was not as great as in the 'Twenties. The wage increases, he went on, are not costs which should properly be translated into rate increases, particularly since such adjustments were made voluntarily. The decline in ton-mile earnings, he added, has been due to depressed competitive rates—not to any whittling down of the rate level fixed by the commission. The carriers, Mr. Fulbright next asserted, "took it for granted that all they had to do was to come in here as they did in Ex Parte 103 and say we need more money."

He denied that maintenance expenditures of the 'Twenties could be compared with those of recent years, because the former involved outlays to avoid recapture. The primary need of the railroads, in Mr. Fulbright's view, is more traffic, and he found support for that view in the testimony of Presidents Clement of the Pennsylvania, Scandrett of the Chicago, Milwaukee, St. Paul & Pacific, and Willard of the Baltimore & Ohio. He proceeded to discount testimony as to credit needs of the carriers, citing prices of railroad securities; although it was a wonder to him that anyone would hold such securities after the story the carriers "told all over this record about how bankrupt they are." The case, Mr. Fulbright next declared "is a bankers' case—the bankers don't want to give up their 4½ per cent." He added that they "can't get it anywhere else" in this period of low interest rates.

Asked by Commissioner Eastman if any purpose would be served by giving the railroads all they want, "and see what happens," Mr. Fulbright thought not. He cited for the Commissioner what he regarded as a typical example of such a situation in the past. Among the things which he considered "the matter with the railroads" Mr. Fulbright listed first the wage increases granted last year.

Several Briefs Already Filed

Meanwhile the Ex Parte 123 briefs are coming in to the commission. Among those filed this week was that of the Pennsylvania Public Service Commission which was a reprint of Governor George H. Earle's testimony in the case. This "carefully prepared statement, supported as it is by official data" was offered as "the best brief for Pennsylvania." Other briefs have been filed by the Tanners Council of America, the Domestic Producers of Potash Salts, Alkali Consumers, the Kentucky-Tennessee Clay Interests, the Live Poultry Shippers' Association and the Evaporated Milk Association.

Less Expensive Plan Presents Better Appearance

(*Continued from page 261*)

provided with brackets to carry a trainman's walk and a railing, the walk consisting of a ⅜-in. steel plate covered with mastic.

Architectural Treatment

The architectural treatment follows the modern mode, with emphasis on the vertical lines, both in the paneling of the facia over the sidewalk portals and in the stepping of wing walls. Emphasis of the vertical dimensions was enhanced by placing the sidewalks at curb elevation rather than following the rather common practice of raising the sidewalks as high as can be done without encroaching on the required sidewalk headroom. The stepped treatment of the soffits of the sidewalk portals is repeated in the openings in the curb piers. However, the rustications on the wing walls were made horizontal. Smooth surfaces on all exposed concrete were assured by the use of ¼-in. plywood inside the 1-in. form sheathing and rubbing the surfaces with carborundum brick while wet.

While the principal architectural effect produced was brought about by the greater use of concrete in this design than in the three-span steel design, it was decided that the dictates of good taste and appearance would be met more effectively by leaving the steel girders exposed rather than to mask them with concrete facias. However, special pains were taken to obtain a neat and finished appearance of the sidewalk brackets by using solid webs, curving the flange angles and concealing their upper ends behind a facia consisting of a 10-in. channel with its legs turned in. This is true also of the welded steel railing, a simple and neat design being obtained by using ½-in. square bars for the spindles, 4-in. channels for the rails and two 6-in. by 6-in. angles, with the edges of their legs welded together and a 6-in. by 6-in. plate placed on top to form square posts. Light grey graphite paint on all of the exposed steel harmonizes well with the light grey of the concrete.

Woodville Road Structure

Another grade separation structure to carry the Toledo Terminal's double-track line over Woodville road, was later built to a design that duplicates the Canal Boulevard bridge in its principal details. Both bridges were designed according to the specifications of the American Railway Engineering Association, for a live load of E72. The projects were under the direction of F. J. Bishop, engineer maintenance of way of the Toledo Terminal. J. C. Webber was in direct charge of both design and construction. The Canal Boulevard bridge was built by the C. R. Boulton Company and the Woodville Road bridge by the O'Connor-Kipf Company, the steel for both bridges being fabricated by the Bethlehem Steel Company. Railroad traffic on the belt line was handled over runaround tracks while the new bridges were being built.

Steel Castings and the Railroad*

A review of eight years' advance in casting design and its part in adapting equipment to meet modern trends

By William H. Sheehan

Manager Eastern District Sales, General Steel Castings Corporation, Eddystone, Pa.

NEARLY eight years ago in this Club, we discussed the contribution of the steel founder to the railroad. It was at that time shown that this contribution and its co-operative acceptance by the railroads reared, over a period of thirty-five years, a steel-castings industry that was robust and progressive. While this growth was remarkable, the advances within the past eight years have been of even greater importance.

The development of steel castings, especially those of large dimension, has gone hand in hand with advances in the art of welding; in fact, the knowledge that such cast structures could be repaired when damaged by accident, has given the user a high degree of confidence. Steel castings would hardly have reached their present sizes and complexities without these advances in the welding art.

Significant Trends in Railroading

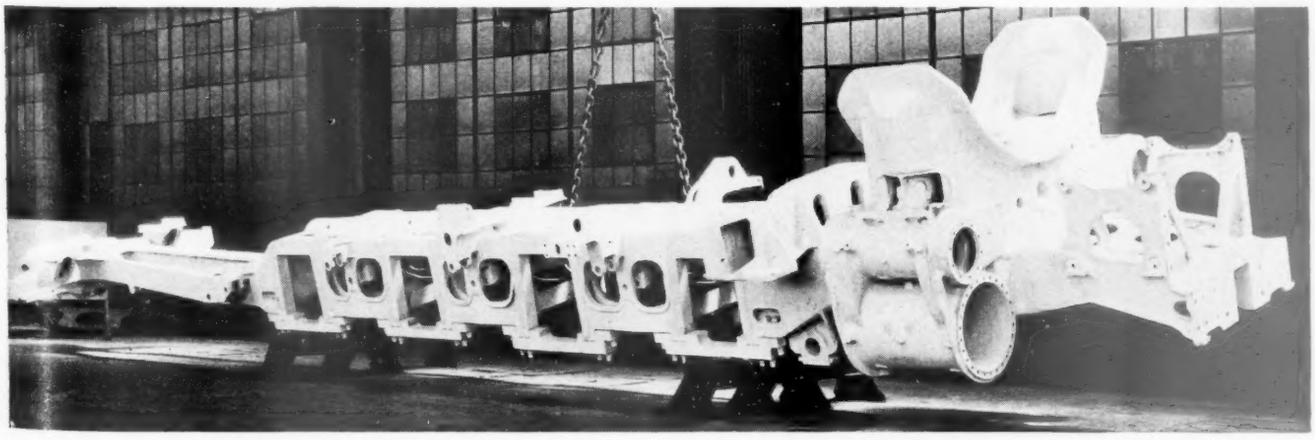
Our most important task is to increase the percentage of use of all equipment and thus accelerate amortization and progress. Modern steam locomotives with improved boilers, roller bearings and one-piece cast-steel beds and truck frames have great potentialities of utilization but the surface has been little more than scratched. As evidence of what can be done: within the past fifteen years, the number of steam locomotives successively used to handle a New York Central through passenger train between Harmon and Chicago has been reduced from seven to two and were it not for the change to electric operation through Cleveland, one Hudson type locomotive would make the entire run with ease. As a matter of fact, this has been done on two trains which by-pass the Cleveland Union Terminal.

The Norfolk & Western presents another example of increased locomotive availability. In 1930 and 1931 they built 20 2-8-8-2 Mallets, Class Y-5. In 1936, they built 10 Y-6's which are the same as the Y-5's except that beds and roller bearings were substituted for built-up frames and plain bearings. The maintenance freedom of the Y-6's is permitting them to be utilized 42 per cent more than the Y-5's.

The spectacular continuous run in December, 1937, between Los Angeles and Chicago, of a Santa Fe new 4-6-4 on a regular scheduled train further indicates the stamina being built into the modern steam locomotive.

The so-called streamlined trains probably appeal more from the viewpoint of style than from any practical advantage which streamlining offers. Styling of steam locomotives can profit by several features which the cast-steel bed offers. By casting the air reservoirs as the backbone and attaching the air pumps to integral brackets, straight running boards and continuous lines are obtained. This effect is further advanced when the power reverse gear is placed on the center of the locomotive. The Canadian Pacific 4-6-4, the Southern Pacific 4-8-4 and the New Haven 4-6-4 locomotives are examples of simple, although effective, styling.

Two trends in railroading are certain to continue: higher passenger- and freight-train speeds and more intensive use of cars and locomotives. These trends are correlative and made necessary by the demands for improved service, the increased cost of modern equipment, the fixed charges resulting therefrom and higher operating expense. The new equipment is more efficient, has a higher degree of availability and can be used more intensively. One-piece steel castings have played a large part in making present results possible and offer much for the future. Higher freight-train speeds and longer daily freight-train runs which modern locomo-



The Steel Bed Casting for the Recently Built Union Pacific 4-8-4 Locomotives

* Abstract of a paper delivered before the New York Railroad Club, January 21, 1938.

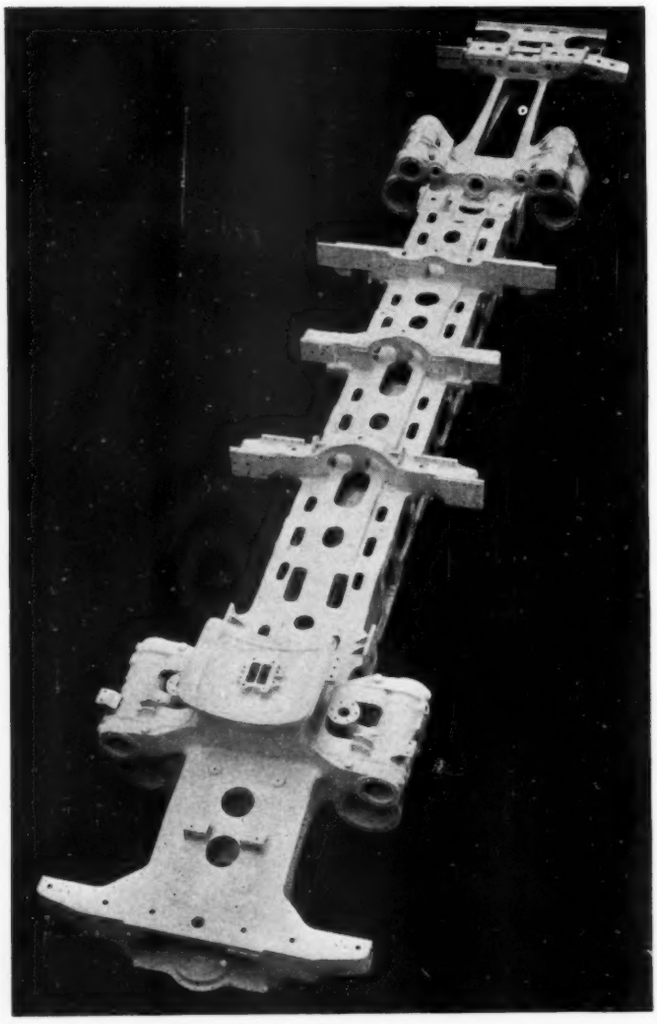
tives permit are two ways of getting more freight-car miles per day and lower operating costs, also better service to shippers.

Track maintenance now consumes a considerable part of the operating budget and we must design equipment to conserve this expensive track from which heavy loads, high speeds and greater traffic density are exacting a high toll.

The "George H. Emerson" 4-4-4-4 type placed in service last July by the Baltimore & Ohio is illustrative of locomotive design aimed at maximum mechanical efficiency while greatly reducing track stresses. All of the drivers are pedestaled in one frame but divided into two sets of machinery. The bed on this locomotive has the two pairs of cylinders cast integral at opposite ends of the driving wheel-base. The new steam locomotive for the Pennsylvania, the proposed construction of which was announced recently by President Clement, will also have two sets of machinery in one frame.

Rough riding of all types of cars, locomotives and tenders comes as much from transverse shocks as from longitudinal and vertical forces. These two latter forces are being curbed through better draft gears, longitudinal cushioning devices and truck spring combinations.

Cushioned anchorage at both ends of the locomotive spring system will reduce damage to track and machinery. Swing-motion tender and trailer trucks now have such corner cushioning. A similar arrangement can be provided at the front driver spring through a coil-spring connection to the bed. The more quickly shocks are distributed through the entire spring system, the easier they will be dissipated and the less damaging effect produced.



Cast-Steel Locomotive Bed for the 4-4-4-4 Locomotive No. 5600 on the Baltimore & Ohio

All the lateral forces absorbed by the locomotive in tracking should be cushioned. Not only on the guiding and trailing trucks where the necessity for lateral control has long been recognized, but on the drivers and tender trucks as well. On passenger-train cars, the need is conceded because of the effect on passenger comfort and express shipments. Freight-car trucks will also profit by using controlled lateral motion. Decreased flange wear, fewer hot boxes, lower track upkeep and lesser train resistance will follow.

The Evolution of the Locomotive Bed

Before the introduction of the bed, yearly locomotive mileages were from 20,000 to 50,000. Bed-equipped locomotives are making from 100,000 to 150,000 miles annually and the attainment of 200,000 to 300,000 miles is in sight.

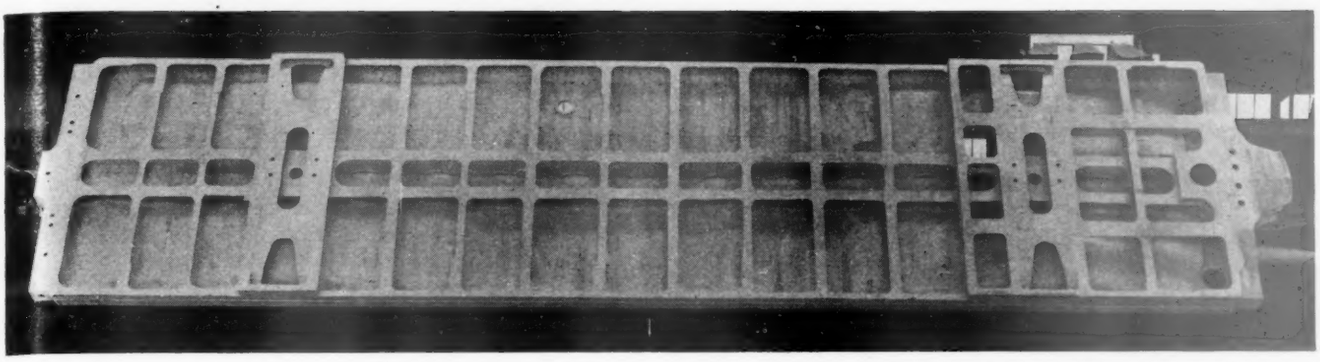
First introduced on the New York Central in 1924, the bed began quite simply; arranged for separate cylinders and separate cradle. In 1930, this Club was shown the latest example at that time: a bed for a Lackawanna 4-8-4 locomotive. By then, the cylinders, cradle and pilot beam had been embodied together with inside steam-pipe connections. While the inside steam pipes found much favor, machining facilities at that time did not permit cylinder-saddle flanges to be high enough to allow steam pipes to be moved out to clear the lower superheater units. Subsequently, such facilities were provided.

The latest example of the bed is that furnished for Union Pacific 4-8-4's of 1937. This has integral guide brackets, air-pump brackets, air reservoirs, rear cylinder heads, provision for roller bearings. This bed also has a high cylinder saddle with provision for inside steam pipes and better smoke box attachment. There are no waist sheets on this locomotive but on account of the long span between cylinder saddle and fire box, twin expansion slide bearings are located intermediate the drivers and engage slides attached to the under side of the boiler shell.

Trend Toward More Complete Structure

The general attitude of railroad officers is well expressed in the words of a prominent mechanical chief, who said: "As a general rule, you cannot afford to have a separate part if maintenance and operating conditions permit that same part to be made integral with the parent structure." The trend not only on beds but on all of these large castings is to eliminate every separate part that can consistently be cast integral. While the manufacturers are glad to conform to this trend, it has often been difficult to provide additional machining facilities fast enough to take care of new operations. As an example of what this additional machining and more integral parts means in manufacture, the number of machine hours required on the 1937 Union Pacific 4-8-4 bed exceeded the 1930 Lackawanna 4-8-4 bed by 55 per cent. There is little question, however, of the increased value to the railroad of this more complete structure.

Waist and expansion sheets on large locomotives are so short that they have little expansible value. As a result, the attaching bolts are usually loose and require constant attention. Two-rail frames needed the support of the boiler and the frequent spacing of waist sheets was essential. The integral bed, however, with



The Water-Bottom Tender Frame for the Norfolk & Western

its deflection-resisting backbone can on short-wheel-base locomotives entirely dispense with boiler supports between cylinder saddle and fire box.

The elimination of waist sheets, together with the wearing plates and reinforcements on the bottom of the boiler with attendent cracks in the shell, will reduce both boiler and frame maintenance. The multiple-bearing single-bar guide can be very simply applied to the bed by connecting its front and rear ends to integral brackets. This eliminates the guide yoke end, as well as a great many bolts.

On the Baltimore & Ohio "George H. Emerson" and the latest Hudson types on the New York Central, the power-reverse-gear cylinder is centrally attached to the backbone of the bed, thereby securing an equalized valve result. It has been found that the gear at the outer end of the reverse shaft, due to torsion, produced different valve action on the two sides of the locomotive.

Weaknesses developed in the earlier design of beds where calculated stresses seemed to be low. Extensive research indicated that thermal strains, produced by expansion and contraction, were responsible for most of the difficulties. Tests traced to the same source the loose bolts and failures of built-up frames and cylinders. Changes in bed design relieved these stresses and now a defect in the vicinity of the integral cylinder is a rare occurrence.

The Water-Bottom Tender Frame

Early locomotive tenders carried four or five thousand gallons of water and about six tons of coal on wooden underframes and two four-wheel trucks. Later, as tender capacities were raised, the frames were made of rolled-steel sections but coal spillage and water leakage caused rapid corrosive deterioration.

In 1907, the first one-piece cast-steel tender frame was introduced and immediately found favor. In 1917, the United States Railroad Administration embodied it in the standard locomotives. Tender capacities had then grown to as high as 12,000 gallons of water and 16 tons of coal.

After the war, tenders with six-wheel trucks which had been introduced in bad-water territory in the Southwest, were found helpful in making longer locomotive runs with fewer stops for coal and water. These larger tanks tended to separate from the frames in collisions and telescope the locomotive cab and, to prevent this, were wedged between brackets at the ends of the frame.

The demand for safer and still larger tenders continued. Limits of height and width had been reached and increases in length meant, in most cases, longer turntables and enginehouse stalls. From this grew the water-bottom tender in which the bottom of the frame was cast solid, the depth utilized for additional capacity and the sides, ends and internal bracing attached to the upper portions.

This effected a large increase in capacity, removed the telescoping hazard, reduced tank maintenance and lowered the center of gravity. This solid cast-steel base permits the use of thinner tank plates, reducing weight without sacrificing foundation rigidity. Water capacities have grown to 25,000 gallons and coal to 36 tons.

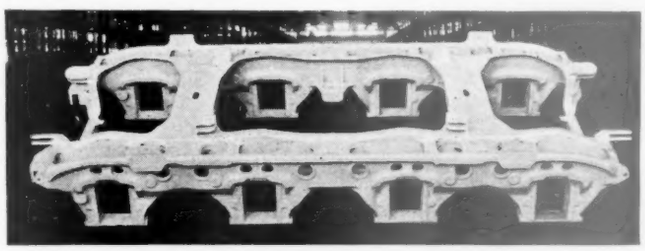
A further improvement in water-bottom tenders is obtained with the cast-steel stoker trough which has been applied in considerable numbers on the New York Central, the Lehigh Valley, the Nickel Plate and the Pere Marquette. Tender water capacity has heretofore been sacrificed to provide a stoker-trough compartment and allow periodic removal of the built-up trough for inspection and maintenance. The surging of the water against these compartment walls causes high maintenance. The restricted space below the compartment makes access for cleaning extremely difficult.

The heavy duty imposed on the built-up trough, because of its dual function of conveyor and crusher, and the difficulty of adequately bracing it to the tender, while at the same time permitting, without undue complication, its periodic removal, made an improved construction imperative. The non-corrosible cast-steel trough is permanently welded to the top of the tender frame. The underside of the trough and the surrounding space formerly unused now provides 600 or more gallons additional water storage. Seven years of service with no repairs other than replacement of the wear plate in the crusher zone of the trough have demonstrated its utility.

Tender Trucks

Nearly 30 years ago, the railroads were having an epidemic of tender derailments. Four-wheel tender trucks then had no lateral motion and only a few were equalized. To stop these derailments, an equalized swing-motion truck was developed.

But as tenders grew and the capacity of four-wheel



Cast-Steel Frame for an Eight-Wheel Tender Truck for the Atlantic Coast Line

trucks was reached, a swing-motion six-wheel truck was developed, in principle the one so generally used today. These trucks which started with 5½-in. by 10-in. axles, now have 6½-in. by 12-in. and many 7-in. by 14-in. The two-pin equalizer arrangement originally used for stability has given way to a roller top equalizer which, while sufficiently stable, is more sensitive, simpler to maintain and easier on the springs. Lateral cushioning swing-motion is provided. The brake shoes are in the clear where they can very easily be inspected and renewed.

These tender trucks are supported above journal boxes by semi-elliptic springs, anchored at the corners of the frame through coil springs. This non-harmonic spring arrangement, besides dampening vertical vibration, reduces unsprung weight and track stresses to a minimum. The lateral cushioning elements reduce the tendency of the tender to heel over, and safely permit higher train speeds on curves with materially lower lateral pressure on the rail.

These large tenders with swing-motion trucks have been free from derailments and easy on track and rail. Swing-hanger pins and bushings, however, wear, and must be regularly renewed, and while this clearly evidences that the trucks need this swing, some have advocated that this feature be omitted. Six-wheel trucks without swing-motion are lighter and have somewhat lower first cost. Unless, however, tenders are cushioned for both vertical vibration and lateral rail pressures, continuous track expense, low wheel mileage and leaks and cracks in the tank structure will result. The railroads might profitably conduct tests to determine the relative value of lateral cushioning on tenders.

Rough riding of tender affects the first car of the train and on passenger tenders is a factor affecting passenger comfort. In a recent example, the tender trucks which were of the non-swing-motion type produced undesirable oscillations in the adjacent car but, when the locomotive was attached to the opposite end of the train, this same car, not then being influenced by the tender, rode beautifully.

There has been in experimental operation on a high-speed tender for the past 15 months, a new type of lateral control. It was recently examined at 110,000 miles and was in excellent condition. It utilizes the principle of a roller on an inclined plane and provides the same characteristics as the swing hangers which it displaces. It will be necessary to get more experience with it before extending its use, but as it promises to simplify greatly the maintenance of the truck parts, while at the same time protecting the track, reference is made to it as a further truck improvement.

Tenders with six-wheel trucks are generally loaded to axle capacity, often on 33-in. wheels, and wheel wear is quite high. High-speed braking requirements and a demand for additional coal and water will probably bring about more wheels under the tender. The use of 16 tender wheels has been considered for several years past, principally as a means of improving the load distribution on restricted bridge spans. The Atlantic Coast Line now has under construction 12 such large tenders with eight-wheel trucks.

Driving-Wheel Centers

Much attention has lately been paid to the design of the driving-wheel center, which previously has been of the spoke type, first made of wood, then of cast iron and of later years, cast steel. Spoked wheel centers flatten at the rim especially over the long spokes, distort laterally under tire shrinkage and crown transversely, causing low tire mileage, and necessitating periodical truing of the rims. The Boxpok center is a stronger, lighter wheel, has a pleasing appearance, will hold its cylindrical contour and, due to its box-sectioned construction, will prevent lateral distortion and transverse crowning of the rim. It permits a tighter tire and will give more tire mileage and greater freedom from flat rim spots. This center is lighter than the spoke type and allows, especially in the smaller diameters, a more perfect counterbalancing and cross-balancing, thus reducing dynamic augment and track damage.

The Scullin wheel center which is of the double-plate type and the Baldwin disc wheel, are other examples of wheel centers designed to overcome the difficulties experienced with the solid spoke center.

The Boiler Is Next

The welded boiler as developed on the Delaware & Hudson appears to have great possibilities and it would seem economically feasible to exercise the necessary care in design, manufacture and heat treatment.

The rule against welding on unstayed surfaces of locomotive boilers has heretofore prevented the introduction of cast steel in locations where it would seem to have a real economic place. The middle course for an articulated locomotive is one of these. Basically, the steam dome, rear cylinder saddle and shell could be formed integral and, no doubt, other inclusive features would suggest themselves.

Cast-steel mud rings have long been the usual practice and for some time superheater headers and steam pipes have also been made of cast steel where higher steam pressures are to be met.

For over ten years, the New Haven has had in service 11 one-piece cast-steel smoke boxes. These have given excellent service, have demonstrated their air-tightness and freedom from the cracking and general disintegration experienced with fabricated boxes. The cast box can be shaped to suit feed-water heaters and other appurtenances without sacrificing strength and can be blended into a styling scheme with no increase in weight.

The Passenger Truck

Much research has been applied to the design of high-speed trucks. The desire to save weight has confined the studies largely to a four-wheel type. Many schemes have been tried with varying success. But one point established is the importance of getting sufficient spring movement. This is emphasized in a review of results obtained on the cars of the "Mercury" on the New York Central where it is agreed that the riding is very good. The same satisfactory comments are made about the riding of the cars of the "Hiawatha" on the Milwaukee, St. Paul & Pacific, the Burlington "Zephyrs," and the Reading's recently built de luxe New York-Philadelphia express. It is interesting to observe that all of these cars are equipped with an orthodox type of cast-steel one-piece four-wheel truck, but with spring movement considerably greater in extent than was previously the practice.

It is generally conceded that a six-wheel truck rides better than a four-wheel truck. This is partly due to the longer wheel base and the fact that a more perfect equalization is secured. One of the factors providing easier riding in a six-wheel truck is the elliptic spring support at the four corners of the bolster. These four cushions allow equalization between diagonally opposite

corners of the truck. This combination of substantially perfect longitudinal, transverse and diagonal equalization, controlled lateral movement, coupled with ample spring range, offers the best mechanical riding arrangement so far developed.

The triple bolster four-wheel truck used on the Union Pacific and Southern Pacific streamlined trains built by Pullman secures this diagonal equalization by providing coil springs at the four points of application of the center-plate load to the truck frame.

Diagonal equalization is also secured in the double-bolster four-wheel truck. This provides the same bolster suspension as the six-wheel truck, coupled with the usual four-wheel type of longitudinal equalization. The Monon, Santa Fe and Milwaukee have used trucks of this general type for many years.

Despite the desire to save weight with a four-wheel truck, it may be well to consider a light-weight six-wheel truck, designed to obtain all of the advantages set forth, and also provide better braking at high speeds, less heating and checking of the wheel tread and lower wheel and rail pressure, all of great advantage on high-speed trains. The New York Central cars recently purchased for the "Century" are so equipped as it was believed that the braking effect on the wheels justified the use of six-wheel trucks. For the same center-plate load, an alloy six-wheel truck will only weigh about 8,000 lb. more per car than alloy four-wheel trucks.

On high-speed equipment, wear of moving parts is accelerated. Heat-treated, easily renewable bushings, pins and wear plates of uniform hardness are applied by the manufacturer at points of wear in the cast-steel beds and trucks. These must be and are of the highest grade, both as to materials and workmanship. Renewals should be of the same quality, and to insure efficient operation, meet the specifications used by the manufacturer. These pins should have accessible means of pressure lubrication. Center plates on locomotives, tenders and passenger-train cars should also be pressure-lubricated, and means for retaining the lubricant might well be considered.

Answers to a recent questionnaire of the Railroad Division of the American Society of Mechanical Engineers placed lubrication first on the list of important equipment design items. This especially applies to freight-car journals, where present and future high operating speeds present a real problem. More freight-car miles per day is an economic necessity and requires dependable bearings to be attainable. Roller bearings are making great progress but are relatively expensive. Improvements in car-bearing design and more effective means of utilizing oil on the journals of both locomotives and cars, already evidence the recognition of this problem. The miles per hot box have been rising steadily. On the Pennsylvania, which is representative of what good practices will accomplish, the number of miles per passenger-car detention for hot journals is 1,200,000 for year ending November 30, 1937, and for the same period on freight cars, 190,000. Great advances have been made in high-speed oil lubrication as indicated on the Baltimore & Ohio's "George H. Emerson" where all journals on the locomotive and tender are serviced by special oil devices.

Freight-Car Underframes

There are now in service over 25,000 cast-steel tender frames and more than 3,000 cast-steel underframes for freight cars, these latter covering almost every type of car. The largest single lot was for flat cars built in 1934 for the Pennsylvania. The cast-steel underframe makes the freight car embodying it a much stronger unit and almost indestructible. Many of these underframes are veterans of quite severe accidents in which other cars of conventional construction were badly damaged or destroyed.

On account of their corrosion resisting qualities, cast-steel-underframe cars have proved of great value in the transportation of bulk sulphur and coal. There are also several hundred such cars in ore service on the Missabe Range in northern Minnesota.

A move toward a better hopper car is the so-called unit-cast construction which embodies the application of non-corrosive cast-steel center sill, body bolsters, center bearers, side-wall braces and door frames. These castings built into the hopper car provide a backbone and framework which will greatly increase the car life and secure much lower maintenance at a not very great increase in cost.

However, the further extension of the one-piece cast-steel underframe in freight cars is almost entirely dependent on improvements in the foundry art and these must take the form of reductions in manufacturing costs. Some considerable degree of mechanization is necessary to bring this about for as at present constituted, casting costs include a very high percentage of labor, most of which has to do with molding, core-making and cleaning operations. Much research and study is now being actively directed toward this end. It is not venturing far to predict that the next few years will show great advances in all phases of steel casting manufacture.

Discussion

In the discussion which followed Mr. Sheehan's presentation of the paper James Partington (American Locomotive Company) stressed the importance of co-operation between the railroad, the locomotive builder and the steel foundry in settling the details of a new locomotive design. Bed castings, he said, have been applied to many of the locomotives built within the last two years and practically all of these castings involved new designs and new patterns. After the drawings are released, he said, it takes from ten to twelve weeks to make delivery of the first casting. For this reason it is important, so far as possible, that standard proportions be adopted in such items as cylinder centers, the driving-wheel base, spacing of driving wheels, the size of air reservoirs, etc. This should be a help in reducing the amount of new pattern work necessary and effect an improvement in deliveries. He suggested similar possibilities in the matter of water-bottom tender frames in order that pattern-shop space now devoted to the tender frames might be available for the locomotive beds.

Referring to Mr. Sheehan's suggestion that one of the barrel courses of the locomotive boiler be a steel casting, Mr. Partington said that, inasmuch as the welded boiler on the Delaware & Hudson will be considered an experimental installation possibly for several years before additional welded boilers will be sanctioned by the Bureau of Locomotive Inspection, Interstate Commerce Commission, Mr. Sheehan's suggestion was over optimistic at this time.

THE RAILWAY EMPLOYEES' DEPARTMENT, consisting of nine constituent railroad unions of the American Federation of Labor, has reported to the United States Department of Labor that between the A. F. of L. convention of 1933 and that of 1937 over 100 additional carriers signed contracts with the department and its affiliated organizations.

Railroads Begin Case Against Train-Limit Bill

An extended hearing is foreseen as the opposition lists a large number of expert witnesses

WASHINGTON, D. C.

CHARACTERIZING the train-limit bill (S. 69) as a "positive and serious menace to safety and an immediate threat to industry and the country," J. Carter Fort, general solicitor of the Association of American Railroads, opened the opposition's case before the House committee on interstate and foreign commerce on January 28. In his opening remarks, Mr. Fort stated that the committee could not do a greater disservice to the employees of the railroads than to recommend to the House the enactment of this bill. He said that the railroads would present a large number of witnesses, some of whom would be experts in safety matters, who would discuss in detail with the committee the questions of safety on trains of more than 70 cars. Due to the large number of witnesses, it seems very probable that the hearings will continue for a considerable length of time —as the committee seems to be in no hurry about concluding them.

According to Mr. Fort, the railroads believe that the bill presents three distinct issues, namely those of safety, cost, and quality of service to the public. Mr. Fort thinks that the question of safety to employees is the most important and he told the committee that the safety argument alone condemns the bill. He went on to warn the committee that they should look to the "net result" of the bill and pointed out that the "questions of this bill are not broad general questions of social policy, but are questions of fact." The railroads, according to Mr. Fort, believe that the other issues raised by the bill are important, but that they are overshadowed by the question of safety, both to the employees of the railroads and the general public who have to cross railroad tracks.

R. L. E. A. Has Not Endorsed Bill

Representative Boren of Oklahoma asked Mr. Fort whether or not railroad labor as a whole had endorsed the bill. Mr. Fort answered by saying that "There has been some confusion about the endorsement or lack of endorsement of this bill by railroad labor. In order to dispel this confusion, I have consulted with the chairman of the Railway Labor Executives Association, which includes in its membership 20 of the 21 so-called standard railroad labor organizations. He has informed me that the R. L. E. A. has not endorsed this bill; that it has not endorsed any train-length bill since 1935 and the endorsement at that time was only for the 1936 session of Congress. The Chairman of the Railway Labor Executives Association stated further that it was his understanding that four of the 20 members in his Association have, as individual organizations, endorsed this bill, the organizations which have individually endorsed it being those which represent train and train service employees —the so-called operating groups. The Brotherhood of Railroad Trainmen is not a member of the organization of 20."

Representative Boren then wanted to know whether they should conclude that the remainder of the Railway Labor Executives Association is against the bill. Mr. Fort replied that he wished the committee to draw no inferences as to how the other executives stood on the bill. Representative Mapes of Michigan was a "little confused" about the rumors that he has been hearing regarding the position of George Harrison, president of the Railway Labor Executives Association. Mr. Fort said that he would not want to interpret what Mr. Harrison thinks about this bill, and that he did not know what his position would be.

Representative Eicher of Iowa was interested to know whether or not the R. L. E. A. had taken any action on the bill. According to Mr. Fort, they had not. Mr. Fort was then asked by Representative Withrow of Wisconsin whether the railroads interpreted this lack of action as opposition to the bill. Mr. Fort replied in the negative.

"It seems strange," said Representative Withrow, "that the Railway Labor Executives Association would endorse the bill at one session and not at another." He went on to point out that at the last session Mr. Harrison had seemed very interested in the bill and had talked to hi mabout it. Mr. Fort then said that later the Labor Executives may endorse the bill or oppose it.

No Shipper Favors Limiting Train Lengths

"No shipping interest," Mr. Fort said, "has seen fit to endorse this bill although proponents of the proposed legislation say it would bring about an improvement in the service now being offered by the railroads to the public. On the contrary, many shippers have opposed it because they know it will impair service."

Mr. Ford pointed out to the committee that in the eight-year period from 1923 to 1930 inclusive, the railroads spent approximately seven billion dollars for improvement of their facilities and equipment, which included the reducing of grades and curves, strengthening of track structures and bridges, laying heavier rail, lengthening sidings, rearranging yards, purchasing new and more powerful locomotives, and building stronger and better freight cars. This program, he said, resulted in a "miraculous improvement in safety and speed."

Between 1923 and 1937 the average length of freight trains, according to Mr. Fort, increased from 39.9 cars to 47.2 cars or 18 per cent. In the same period, the average speed of freight trains increased 48 per cent. Mr. Fort went on to point out that the average length of freight trains now is about the same as it was in 1928. The bill, said Mr. Fort, would turn back railroad operating methods 20 years or more and would greatly impair operating efficiency because of the fact that the railroads would not be able to use their present facilities to their normal capacity. He estimated that on the basis of 1937 business, the reduction in the length of freight trains

would necessitate sixty million additional freight train-miles.

Accidents Related to Number of Trains

Mr. Fort resumed his statement at the February 1 session of the committee and was closely questioned by several members regarding various aspects of the bill. After a brief recapitulation of his testimony at the previous hearing, Mr. Fort began by warning the committee that it should never lose sight of the fact that the number of accidents is related to the number of trains run and not to the number of cars in a train. At this point, Representative Bulwinkle of North Carolina asked what limit, if any, should be placed on the length of trains. Mr. Fort replied that he did not think that there should be any limit. Asked whether there should ever be a limit to the number of cars in a train, Mr. Fort said that this was a "long" question. Representative Bulwinkle remarked that "I'm dealing with a long subject when I am talking about a train of 150 cars." Mr. Fort said that he could not foretell what may have to be done in the future and would not answer Representative Bulwinkle's question, since to do so would require the gift of prophecy.

Representative Bulwinkle also wanted to know whether or not any railroad had placed a limit on the number of cars that could be handled in one train. Mr. Fort did not know of any. He then asked if the Pennsylvania had a limit of 125 cars. Mr. Fort answered by saying that he was not able to answer the question himself, but that later in the hearing they would place a Pennsylvania operating man on the stand who could answer the question. After answering several questions of this type, Mr. Fort asserted that the passage of this bill would be a "usurpation of managerial duty" and that in this respect, the bill goes far beyond any other bill which has ever been presented to Congress.

Representative Boren asked Mr. Fort whether the railroads take the position that the decrease in the number of cars would not decrease the number of shock accidents. According to Mr. Fort, the railroads believe that this would be true. They feel that the number of train accidents from slack action will increase due to the increased number of starts and stops necessitated by the increased number of trains.

Representative Withrow cited the cases of the automatic coupler and the air brake and wanted to know why the railroads had not adopted them voluntarily. Mr. Fort denied that they had been forced to adopt the automatic coupler and went on to point out that they had developed both of these safety devices, and that legislation was adopted only to standardize the practices of railroads and force a very few lines who were slow in using them.

Cites Decrease in Accidents

Mr. Fort had begun to cite some statistics which showed that over a long period of years the railroads had materially reduced the number of accidents, when Representative Bulwinkle asked whether the railroads report all their accidents. Mr. Fort was sure that they did as they were required to do so by law. He added, however, that there might be times when there are mistakes in the recording of accidents and he admitted that occasionally there might be failures to report accidents. He told the committee that, in his opinion, there was no body of statistics as reliable as the railroad accident statistics.

According to Mr. Fort, in 1923 there were 1957 accidents in train service while in 1936 there were only 674, a reduction of 65.6 per cent. In 1923 there were 219 train accidents as compared with 63 in 1936, a reduction of 71 per cent. He went on to point out that of the 674 train service accidents, only three resulted in fatalities, and not one of these fatalities was on a train of more than 70 cars. Answering the criticism of the proponents' witnesses concerning the inability to distinguish hand signals on long trains, Mr. Fort said that since 1931 not a man has been killed because of misunderstood hand signals.

Chairman Lea asked whether or not the railroads had computed the number of new men that would be required to operate trains under the bill. Mr. Fort said that they had not done so, but he warned that because of the keen competition in the transportation field, the railroads would eventually lose business and would, as a direct result, in the long run use less employees than they use now. "If the railroad expenses are going to be stuck up by artificial standards," said Mr. Fort, "the railroads and railroad labor are going to suffer."

Mr. Fort concluded his opening statement at the February 2 hearing by pointing out to the committee that the bill, if passed, would cost the railroads in out of pocket expenses, $100,000,000 and that the rearrangement of facilities would amount to $500,000,000. He went on to say that it was not necessary for him to ask where the railroads would get this additional money. As a final word, Mr. Fort warned that in a time of national emergency Congress could not undo the conditions that the enactment of the bill would bring about. He referred mainly to the fact that the railroads would reduce the size of sidings, roundhouses and other terminal facilities so that they would not be able to handle long trains if they were suddenly called upon to do so.

Southern Pacific Attorney Testifies

The first technical witness for the railroads was Henley C. Booth, general attorney for the Southern Pacific, who began a long prepared statement outlining the attempts of the Southern Pacific and the Santa Fe to invalidate the Arizona 70-car train-limit law. The witness began by stating that train length laws have been enacted in Nevada, Louisiana, Oklahoma and Arizona, but enforcement has been enjoined in all except the last named state. Representative Martin asked the witness whether he knew how many other states had considered this type of legislation. Mr. Booth did not have the information at hand, but promised Representative Martin that he would get it for him. Representative Martin said that the testimony of this type would be helpful in showing that there was public recognition of the gravity of the question of limiting the length of trains. Mr. Booth replied that he felt that rather it showed the "persistency" of the people who introduce the bills.

Mr. Booth went on to tell the committee that in Arizona, a statutory three-judge federal court declared the law unconstitutional but the United States Supreme Court, without passing on the merits of the case, dismissed the proceedings because of a technicality. The technicality was that during the time of the trial of the case, the attorney-general of Arizona relinquished his office to another man who objected to being made a party to the suit. The decision of the United States Supreme Court sustained his objection. As a result, said Mr. Booth, the railroad company has not thought it worthwhile to begin another case because of the fact that by the time the case could be tried and ap-

(*Continued on page 277*)

"Engineer Joe Hogan"

Photograph Made by L. B. Keller and Accorded Honorable Mention

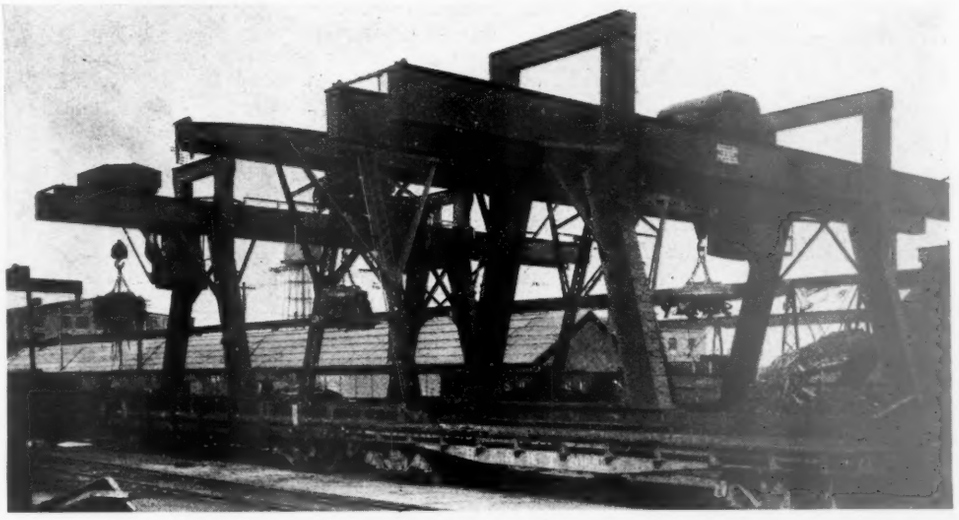
(See page 281)

Handling Scrap for Profit on Rock Island

Two-way bids and fair dealing feature selling methods — Departmental team work in reclamation

By J. C. Kirk

General Storekeeper,
C. R. I. & P., Silvis, Ill.



Three Gantry Cranes With 65-in. Magnets Straddle the Scrap Dock

ACCORDING to figures published by the United States Bureau of Mines in November, 1936, the consumption of scrap in this country increased from approximately 5,000,000 tons in 1900 to more than 37,000,000 tons in 1929. In 1935, the latest year for which figures are available, the consumption of scrap was 26,415,330 tons and the consumption of pig iron in the same year was 20,515,037 tons. It will be seen from these figures that the consumption of scrap is greater in the steel industry than the consumption of pig iron.

The importance of scrap to the railroads is seen when it is considered that 26,415,330 tons of scrap, loaded in cars of 50-tons capacity, means 528,306 carloads. Approximately one-half of this scrap is what is termed "home" scrap; that is, scrap produced in the plant, including such items as spills, skulls, butts, croppings, etc., which is used again in the plant. The balance, however, is moved in transit and large quantities of it move by rail, so that the money received for this haul amounts to a very large sum. The roads produce about 15 per cent of all of the nation's scrap, and the money received for this scrap runs into millions of dollars annually.

Scrap and Reclamation Centralized

The Rock Island has for years given careful study to the collection, grading and sale of scrap and to the reclamation of material from the scrap. Scrap from the roadway is accumulated in standard scrap boxes at section houses, and roadmasters arrange for it to be picked up when a carload accumulates on their territory. Scrap from shops and roundhouses is stored at shop scrap docks and loaded out as soon as a carload accumulates.

All scrap is sent to the general scrap dock at Silvis, Ill., for grading and sorting for sale, and material which can be used again is reclaimed. The general shops, as well as the general store of the railroad, are located at Silvis, so that the location of the general scrap dock is ideal from the standpoint of getting material from the scrap reworked and reclaimed, after which it is turned into the general store for distribution in outbound cars running on regular schedules to all points on the system.

Silvis is also ideally situated for distribution purposes, being 174 miles west of Chicago, where lines of the railroad diverge to the north, south, east and west. Nearly all of the scrap is sold either in Davenport, Ia., Rock Island, Ill., Moline, Peoria or Chicago, so that scrap can be accumulated at the general dock at Silvis without back haul to market.

The main scrap dock at Silvis is 1,200 ft. long and is equipped with three 10-ton electrically-operated cranes. The facilities also include an auxiliary dock 600 ft. long with an overhead, electrically-operated crane of five tons capacity. Between these two docks is the reclamation plant. The work performed consists of repairs to tinware, brake beams and lamps, the welding of couplers, truck sides and bolsters, fitting up air and steam hose and the reclamation of rail anchors, track spikes, track bolts, machine bolts, nut locks, washers, nuts, etc.

The scrap dock is adjacent to the general shops and the general blacksmith shops of the system, and any reclamation work requiring mechanics is performed in these shops on regular store department orders. This arrangement permits all mechanical work to be performed in regular shops, avoiding the expense of duplicate shops.

A Mile of Track For Dismantling

A yard is also located at Silvis in which freight cars are dismantled. The plan is to move to Silvis all freight equipment to be dismantled, if it can be moved. The

balance of the cars are dismantled locally. As far as possible, cars are moved to the dismantling yard under load. The outside points load the cars with scrap or other material for the general store at Silvis, and after the cars are unloaded, they are turned over to the dismantling yard for further handling. This plan makes it possible to dismantle approximately 75 per cent of the freight equipment at Silvis where it can be done by men regularly assigned to this work, using a 25-ton locomotive crane equipped with a magnet. Outside points do not have cranes equipped with magnets.

The yard has four tracks, each approximately 1,500 ft. long, and is piped with air for the operation of air hammers, and with oxygen and acetylene gas for cutting operations. It is operated by the mechanical department, and scrap recovered from the dismantled equipment is converted into heavy melting steel. This scrap is loaded into cars that have been weighed light, and turned over to the stores department for sale.

The methods employed in grading scrap are of necessity different from those used by a scrap dealer. The dealer prepares scrap for a customer in accordance with the customer's specifications. Railroads, however, must sell their scrap on competitive bids to the highest bidder. It is, therefore, necessary to have a seller's specification, and for that purpose the A.A.R. scrap specifications are used. These specifications are known to the trade and offer the best method of advertising the scrap properly in order to obtain competitive bids.

The A.A.R. classification was purposely made broad enough so that all railroads could use it. It covers both prepared and unprepared scrap. For example, it includes such items as cast steel bolsters, built-up bolsters, boilers, frogs and switches uncut, structural steel, etc., which are considered unprepared scrap, for the reason that they can be sold as accumulated without additional preparation, or they can be prepared for heavy melting steel if the premium offered for prepared scrap is large enough to give a margin of profit after the work is completed.

Unit Costs Control Sales

All scrap is sold by the purchasing agent. To assist him in marketing the scrap, he is furnished with the unit costs of preparing the different grades of scrap. If the premium for prepared scrap is large enough to produce a profit for doing the work, the scrap is sold prepared; otherwise it is sold unprepared.

Looking Into a Sorting Bin from the Crane

Loading a Car of Sorted Scrap at Silvis

As an example, the scrap report for a certain month advertised scrap for sale as follows:

10,000 tons No. 24 heavy melting steel
1,000 tons No. 9 cast steel bolsters
1,000 tons No. 35 structural steel

The bids received were as follows:

Heavy melting steel, No. 24—$14.00 per ton
Cast steel bolsters, No. 9—$13.50 per ton
Structural steel, No. 35—$12.00 per ton

The cutting costs filed with the purchasing agent were as follows:

To cut No. 9 bolsters to heavy melt No. 24—$1.00 per ton
To cut No. 35 structural to heavy melt No. 24—$1.50 per ton

The sales of this scrap were as follows, on the basis of the above figures:

9,000 tons No. 24 heavy melting steel
1,000 tons No. 9 cast steel bolsters
0 tons No. 35 structural steel

It will be noted that the premium offered for heavy melt over cast steel bolsters was only 50 cents a ton, while the cutting cost was $1 a ton. Therefore, this scrap was sold as bolsters. On the other hand, the premium offered for structural steel was $2 a ton and the cutting cost was $1.50 a ton; therefore, no structural steel was sold, but the scrap was prepared into heavy melting steel at a profit of 50 cents a ton.

Keep Scrap Moving

Scrap is reported to the purchasing department for sale on the 15th day of each month, and the effort is made to anticipate in advance what the incoming tonnage of scrap will be and to have sales orders available so that the scrap can be loaded out as it accumulates and its rehandling avoided.

All users of material are encouraged to reclaim as much material locally as possible to avoid shipping it back and forth and to return the material to service as quickly as possible. Facilities are not available at outside points for all reclamation, but many items can be reclaimed locally and used again, and this practice is encouraged.

The scrap pile represents a proving ground for the study of the service given by material, for it is to the scrap dock that material goes after being removed from service. This material is studied in conjunction with

the using departments, with a view of improving design and reducing consumption. Lists of all materials guaranteed are kept in the hands of supervising foremen, so that they can set aside any material failing to meet the guarantee and return it to the manufacturers for free replacement.

Care is exercised to see that the material sold as scrap conforms to specifications in every way and that weights are correct. The Rock Island takes as much pride in the scrap produced as any manufacturer would in the articles he manufacturers; many years of fair dealing have assured dealers that they can expect a good grade of scrap from the railroad, and they bid accordingly.

The general scrap dock and reclamation plant have been established at Silvis for about 30 years, and the reclamation of material from the scrap, the sorting, grading and preparing of the scrap and its sale and marketing have been the source of constant study. Much has been accomplished in the past and much remains to be accomplished in the future to attain the maximum results in the handling of waste materials. It is to these by-products that the railroads have turned to increase their revenues.

Railroads Begin Case Against Train-Limit Bill

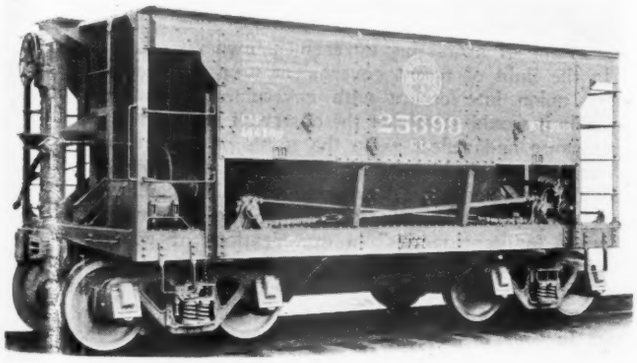
(*Continued from page 273*)

pealed, the office of attorney-general would probably have changed hands. Also, he pointed out that the penalty is so great for violation of the law, that they hesitated to run the risk of incurring it. According to Mr. Booth, the situation, as it now stands, is that the railroad cannot attack the law for the reason that the attorney-general will not say whether or not he will enforce it.

Mr. Booth testified that freight traffic handled by the Southern Pacific last year could have been transported in 3,268 fewer freight trains had it not been necessary to restrict the length of freight trains to 70 cars. "In Arizona", he added, "based on the 1927 traffic, the court found a direct increase of $600,000 per year in the Santa Fe operating expenses and of $400,000 per year on but one main line of the Southern Pacific.

In answer to a question of Representative Martin, Mr. Booth said that the present practice of his road is to break up trains longer than 70 cars at the Arizona-California line and at the Arizona-New Mexico line and then consolidate them after they have passed through Arizona.

* * *



Ore Car for the Duluth, Missabe & Northern Built by the Pressed Steel Car Company

Odds and Ends . . .

Aces

So far, only one hole-in-one by a railroad golfer in 1937 has been reported to this department. This one was made by W. R. Eble, superintendent, Chicago, Burlington & Quincy, Galesburg, Ill. Mr. Eble teed off on the very first hole of the Soagetaha club, and sent a pitch shot 140 yd. into the cup.

Long Distance Commuter

Justus L. Schichtling has sent his family to a cottage at Toms River, N. J., every year for the past five years and has spent every weekend with them at the shore, returning to his office in the city during the week. Thousands of other business men do the same thing, but what makes Schichtling's case remarkable is the fact that he lives and works in Chicago, and commutes at full cash fare to the seashore nearly a thousand miles away, making the trip every weekend via Pennsylvania between Chicago and Trenton, N. J., where his wife meets him with the family car.

Monument To Superintendent

On November 8, with elaborate ceremonies, a monument to Jose S. De Echagaray was unveiled at Pachucha, Mexicao. Mr. Echagaray, who was superintendent of the Hidalgo division of the National of Mexico when he died in 1930, was widely known in this country through his work with the American Association of Railroad Superintendents. He was the first native Mexican conductor to be employed on Mexican railways and was the founder of the 21 transportation schools begun in 1908 to educate native Mexicans to take over train and engine service positions, which, before then were largely held by citizens of the U. S. A.

All-Round Railroader

L. D. Scribner, of St. Paul, challenges the records of other all-around railroaders that have appeared in this column. He lists the following positions he has held with the Northern Pacific since 1913 to back his claim:

MECHANICAL DEPARTMENT:
- Call boy
- Laborer

TRANSPORTATION DEPARTMENT:
- Call boy
- Check clerk
- Train desk clerk
- Car service clerk
- Division clerk
- Chief clerk to general yardmaster
- Timekeeper
- File clerk
- Material clerk

MAINTENANCE OF WAY DEPARTMENT:
- Section laborer
- Extra gang laborer
- Extra gang timekeeper

ACCOUNTING DEPARTMENT:
- Material clerk
- Price clerk
- Distribution clerk

PASSENGER DEPARTMENT:
- Night ticket clerk

FREIGHT DEPARTMENT:
- Bill clerk

STORES DEPARTMENT:
- Chief clerk to division storekeeper

"Sentimental" Railroad Passes On

For 40 years, there has been a sentimental note to the toot of the whistle on the one locomotive of the Wood River Branch; but the little whistle will toot no more, for the trustees of the New York, New Haven & Hartford have voted to abandon the six miles of track between Wood River and Hope Valley.

Ralph C. Watrous bought the railroad 40 years ago, he said, so that his mother wouldn't feel lonely or isolated in her Hope Valley home. She died several years ago. Mr. Watrous then sold a considerable block of shares to the New Haven, giving it control of the road.

Several times earlier the railroad has faced extinction, and once it was preserved only when Mr. Watrous took a railroad executive to see his mother. "I gave him some doughnuts, a glass of milk and let him talk to my mother", Mr. Watrous said. "He decided not to abandon it."

The railroad runs only one train a day. It employs only one man, Otis A. Larkin of Hope Valley, who is engineer, track walker, baggage man, conductor and general agent.

"It's been fun being a railroad president", Mr. Watrous said, "even if I did own only six miles. I've traveled all over the country on railroads, and I've always been received as a fellow railroad president."

Communications . . .

"An Honest Day's Work For an Honest Day's Pay"

CHICAGO

TO THE EDITOR:

The only way to save the railroads is to require all enginemen and trainmen to work 25 eight-hour days per month and pay them by the day or by the month without any regard for the mileage traversed.

Raising rates will wreck the railroads. You must agitate to treble the Panama canal tolls and to collect tolls on the Sault St. Marie, Welland and Cape Cod canals.

LEROY L. HUNTER, C.E.

Sticks and Stones May Break Our Bones But . . . .

CLEVELAND, OHIO

TO THE EDITOR:

I do not believe you should be permitted to get away unnoticed with the shabby trick you put over in your issue of January 15.

You commented editorially on an article in "Labor" magazine which had inquired how "a worker can live decently, provide food and shelter for his family, education for his children . . . on less than $2,000 a year."

Your comment included the following statement: "But a national income of 68 billion dollars, even if divided among the approximately 42 million persons gainfully employed, giving none of it to anyone else, equals only about $1,600 apiece."

From which you draw the hard-headed conclusion that one "can't buy goods that don't exist."

When the editor of "Labor" talked about a worker providing for his family and educating his children, it is perfectly clear that he is talking about a head of a family. There is no possible excuse for misunderstanding that.

Your sleight of hand trick was in substituting for that definition of worker "persons gainfully employed" which includes Sister Sue and Cousin Bill and everybody else who had a job. This is something entirely different than heads of families.

The population of the U. S. is approximately 125 million. Divide that by 5, the usual figure for such computations, and one gets 25 million families. Divide that figure into the 68 billion dollar national income and one gets $2,000 per family with a nice comfortable margin to spare for statistical error.

Of course this calculation does not prove that such a sharing of the wealth is socially desirable.

But it does prove that the reasoning you applied to a very simple problem in economics was something worthy of the Townsend Plan.

It would seem to me that the conclusion you should draw from the corrected set of figures is that "a lot of people in the U. S. can't, by reason of the present division of income, buy goods that do exist and which they need."

THURBER CATTON.

[Our correspondent appears to believe that enough wealth already exists to provide comfortably for all the American people, if only it were more equitably distributed. But where is this wealth? Are there thousands of new houses built just waiting to be moved into as soon as wages are raised so that workingmen will have "purchasing power" enough to buy them? Are there millions of new automobiles in storage waiting for the same development in order to get onto the highways?

Of course there are not. This wealth does not exist, and it won't exist until 10 million unemployed go to work again to produce these houses and automobiles and other commodities which constitute real wealth and income. Why aren't the unemployed now working? There are two reasons:

1. Unions and government have forced wage rates in many occupations to a point where people who would like to provide jobs can't afford to do so.

2. Capital investment is needed to provide men with the machines and tools with which to work—and the combination of labor union and government policies is such that capital so invested is quite likely to be confiscated, either by the labor unions or by the tax collectors. So the people who have such capital (and this includes union members too) refuse to invest it—in utilities, in railroads, in industry.

Our correspondent attaches such labels as "shabby" and "Townsend plan" to us apparently with the intent of strengthening his argument. Whether, in fact, he actually does so, is for our readers to judge. It was "Labor," not ourselves, who assumed that the average worker needed $2000 a year. "Labor" was seeking to justify higher wages. We endeavored to show, and did show, the impracticability of wages as high as "Labor" contended they should be unless production were increased.

What our correspondent says, in effect, is that the average family income is already higher than "Labor" contends it ought to be. The average income per railroad employee in 1936 was $1735. Assuming two such employees in our correspondent's "usual family of 5," we have a family income of $3470. But this is our correspondent's way of looking at it, not ours. According to him, apparently, the average railroad family is getting too much, and ought to be leveled down—since he does not think we need to produce more wealth, but simply redistribute that which we already have.—EDITOR]

How Unions Fare Under Government Ownership

WASHINGTON, D. C.

TO THE EDITOR:

Assuming that like other individuals and organizations railroad labor leaders have always foremost in their minds considerations affecting their self-preservation, I believe that two recent news items should provide them considerable anxiety.

First is President Roosevelt's message to the recent convention of the National Federation of Federal Employes: "Militant tactics have no place in the function of an organization of government employes. . . . Such action looking forward to the paralysis of government by those who have sworn to support it is unthinkable and intolerable."

Second is the prompt action which the federal government took when seamen on a government owned boat attempted to strike. You will recall that orders were quickly issued to place the ringleaders in irons and discharge any other striking members of the crew. The result was that the incipient strike vanished.

I believe it to be a fact that several of the railroad labor unions are definitely committed to government ownership of railroads. Others, while not openly espousing this cause, are advocates of various laws which, if all enacted, would undoubtedly add a sufficient burden to the cost of railroad operation as to be an effective means of promoting government ownership.

In the light of recent government pronouncements and action when union interference with government operations appeared possible it would seem that the observant labor leader might well give pause and reflect as to the status of his organization, and himself to put it bluntly, if government operation of railroads should become a fact. A non-militant union would appear to be practically no union whatsoever. If the government will not tolerate "militant tactics" in organizations of government employes, it must follow that railroad unions under government ownership would soon become impotent, at least measured by present standards. The forceful methods used by the government in breaking the strike on a transportation agency which they now own could under government ownership be applied to railroad labor.

A. F. SWINBURNE.

NEWS

Wheeler Assails Increased Rates

Also says he will soon introduce "drastic and large-scale legislation"

Just as the Interstate Commerce Commission was getting ready to hear final oral argument in Ex Parte 123, the railroads' 15 per cent rate increase case, Senator Wheeler, chairman of the Senate Interstate Commerce Committee, on January 31, issued a statement in which he said that "few people believe that they (the railroads) can earn more from higher freight rates, certainly not enough more to save them." Senator Wheeler gave out his statement to clarify the "talk and uninformed speculation about the legislative plans of the Senate Railroad Committee." The Senator went on to explain that before he takes any action regarding railroad legislation, he will confer with President Roosevelt and the heads of all departments of the government which have any connection with the railroad problem.

The complete text of Senator Wheeler's statement regarding new rail legislation follows:

"There has been so much talk and uninformed speculation about the legislative plans of the Senate Railroad Committee that I deem it necessary to make a few points clear.

"The Committee is well aware of its responsibility in the matter of legislation. Since our hearings began the situation of the American railroads has become dangerousy acute. We have considered in our hearings many abuses, on the part of management and their 'doctors' the bankers, which have contributed to the present railroad crisis. I desire to point out, however, that there are far deeper and more serious causes for the ruin of the railroads than any discussed extensively at our hearings. Any legislation dealing with the railroads must be integrated into a pattern of railroad recovery, not merely deal with past crimes and abuses.

"Obviously the most pressing difficulty of the railroads is that they do not earn enough money to survive as they are now constituted. Few people believe that they can earn more from higher freight rates, certainly not enough more to save them. If a railroad cannot meet its expenses through increased earnings, then it clearly must reduce its expenses. This can be done by reducing bond interest where roads are overcapitalized and by reducing the much greater expense of maintaining duplicate facilities and services of all kinds which are now required because of the wasteful competitive scramble for traffic now forced upon our roads by their failure to co-ordinate their services. These are problems which can only be solved by drastic and large scale legislation.

"Before any action is taken on my part with reference to new legislation on these subjects, I expect to confer with President Roosevelt whose views are of the utmost importance to me in this matter. I also intend to confer with representatives of all the principal interests involved. It will be necessary, in my judgment, to have the cooperation of all these groups as well as the various departments of the government to work out and pass legislation which is in the interest of the general public.

"Whatever legislation is passed should have for its objective cheaper transportation, adequate service and protection of the income of the men now employed by the railroads. This will prove in the long run more beneficial to labor and to the security holders, as well as to the general public, than the continuance of the present chaotic and ruinous situation.

"If we could pass legislation that would solve the railroad problem along these lines it would do much to restore prosperity in this country."

President to Confer on Rail Legislation

President Roosevelt, at his press conference on February 1, said that he was soon going to have a conference in the White House regarding railroad legislation. Asked what the agenda of the conference would be, he replied that they would discuss everything but rates. The President went on to say that he did not know at this time who would attend, but that he was calling it at the suggestion of Chairman Splawn of the Interstate Commerce Commission. Answering a question, the President said that he did not know whether or not Senator Wheeler would attend.

Fairfax Harrison Passes at 69

Fairfax Harrison, president of the Southern and several of its subsidiaries for a period of 24 years subsequent to his recent retirement, died from an attack of heart disease, in Baltimore, Md., on February 2, at the age of 69. Mr. Harrison retired from the presidency at his own request on October 21, 1937, but remained on the board of directors and continued his chairmanship of the finance committee.

Railroads Fight Coal Price Order

Court action started while commission orders exhaustive price inquiry

Annulment of orders recently issued by the National Bituminous Coal Commission, prescribing minimum prices for locomotive fuel, effective on December 16, which will increase the fuel bill of the railroads by $21,000,000, was asked in a petition filed on January 28, with the United States Court of Appeals for the District of Columbia by nearly 200 railroads, members of the Association of American Railroads and the American Short Line Railroad Association. Pending final determination of the legality of the commission's orders, the court was asked to issue a stay postponing their effective date. Under these orders, the average price of coal bought by the railroads for locomotive use was increased by more than 20 cents per ton. The railroads, the petition pointed out, use approximately 90 million tons of bituminous coal, or 22 per cent of the production in this country

The railroads, in their petition, allege that the coal commission issued its orders fixing minimum prices for locomotive fuel without conducting a full and fair hearing as required by the Bituminous Coal Act of 1937 and without giving the railroads or other interested parties an opportunity to submit facts in the form of evidence and arguments bearing on what are fair, reasonable and lawful prices for locomotive fuel. The petition also alleges that the Commission failed to make any findings of fact supported by substantial evidence as required by the Act, and that the prices fixed for locomotive fuel are unreasonably high.

After the orders regarding minimum prices for locomotive fuel were issued, but before they went into effect, the petition points out, the railroads and the Consumers' Counsel filed a petition with the Commission asking that the effective date be postponed and that a hearing be conducted. A preliminary hearing was held on December 14, 1937. On the following day, the Commission denied the petition for a postponement of the effective date. The Commission also denied a request, which the railroads had made, for permission to examine the statistical data and other information used by the Commission in fixing minimum locomotive fuel prices.

The petition filed December 16 also alleges that the commission, in its orders,

failed to take into consideration certain factors which "appreciably reduce the cost of producing and selling such coal." as follows:

"1. The railroads take coal throughout the year with only a relatively slight variation in tonnage due to seasons or weather conditions. Such regularity of demand does not occur with respect to coal for domestic purposes, and only to a limited extent with respect to coal for industrial purposes.

"2. Domestic and industrial consumers demand sizing of coal, requiring capital expenditures and operating costs not required to produce mine-run locomotive fuel coal. When other than mine-run coal is used for locomotive fuel, sizes for which no other market is available are ordinarily furnished by the mines and accepted by the railroads.

"3. The railroads assist the coal industry by taking different sizes of coal to meet operating and marketing conditions of the mines. It is the ordinary practice, when there is a market for nut and slack, for the railroads to take the lump coal. With a market for lump and slack coal, the railroads take the nut and egg. With a lump market only, the railroads take the resultant coal of varying sizes. When there is a balanced market for all sizes of coal, the railroads use straight mine-run, giving the operators added running time. This practice on the part of the railroads affords flexibility of operation for the mines and is of substantial benefit to the coal industry.

"4. Railroads which originate coal frequently carry surplus fuel stocks and in this way relieve mines of sizes which cannot be marketed commercially at the time.

"5. The unit selling, collection and accounting expenses for locomotive fuel coal are substantially less than the average unit selling, collection and accounting expenses for all bituminous coal.

"6. Railroad track storage facilities permit elasticity in shipments by mines, and make unnecessary equal daily installment shipments such as are frequently required by commercial consumers. Such flexibility makes it possible to plan mine work schedules, and results in a greater measure of regularity in the work of mine labor.

"The action of the commission in failing to give effect to these factors with respect to the production and selling of railroad locomotive fuel coal, as above set out, was arbitrary, capricious, unreasonable and in disregard of the standards prescribed by the Coal Act."

The petition also alleges that the minimum prices fixed by the Commission changed substantially the relationships between the prices for such coal which were in effect prior to the effective date of the orders. As a result, such changes not only interfered with the preservation of the existing fair competitive opportunities in the coal industry, but will result in an unjustified dislocation of tonnage and in unwarranted preferences to certain districts and prejudices against others. The minimum prices fixed by the Commission also failed to reflect the relative market values of the various kinds and qualities of coal, according to the petition.

Under the coal Act, legal proceedings involving orders issued by the commission can be instituted in the United States Circuit Court of Appeals rather than in lower federal courts.

Meanwhile an exhaustive study into the entire subject of railroad locomotive fuel will be started in Washington February 14 by the commission which on its own motion has issued an order calling upon representatives of all district coal producers' boards, code member mine operators, and consumers to attend the hearing. Two days later the question of discounts or price allowances made by code members to distributors who purchase coal for resale in not less than carload lots will be taken up.

According to an order issued January 28, the commission "upon its own motion proposes to review and consider a revision of the present established minimum prices and marketing rules and regulations applying to sales of coal for railroad locomotive fuel."

On the same date the commission directed that a hearing on discounts for locomotive fuel which had been postponed from last week until February 7 be consolidated and heard.

As the basis of discussion at the railroad fuel hearing, the commission set forth in its order a proposal for the regulation of sales of locomotive fuel which would: Eliminate a special "use classification" for railroad fuel now existing and requiring railroads to pay the established minimum price for coal now charged other industrial or domestic buyers; forbid the payment of discounts or allowance of commissions to sales agents, wholesalers or other purchasers of railroad fuel; forbid the substitution of a higher grade or size of coal than stipulated in the railroad fuel contract or order; eliminate a distinction between coal sold to railroads on which the mine is located and "off-line" railroads (in some districts at present a lower minimum price is fixed for sales to "off-line" railroads than to those on which the mine is located); make it compulsory where coal is crushed that the producer charge the railroad the minimum price established for the grade and size from which the coal is crushed, plus an additional 5 cents a ton, and forbid absorption of freight rate differentials on "off-line" business.

The commission asserted in its order that the proposal was in no sense to be construed as a ruling of the commission, and pending final determination of the whole subject of railroad fuel, the present prices and marketing rules and regulations will remain in effect.

Beyer Confirmed By Senate

The Senate on January 28 confirmed President Roosevelt's reappointment of Otto S. Beyer to a National Mediation Board term expiring February 1, 1941. Mr. Beyer has been acting chairman of the board since the death of James W. Carmalt.

Lake Coal Demurrage

The Interstate Commerce Commission has postponed from February 7 to March 28 the further hearings at Washington, D. C., in No. 27266, Lake Coal Demurrage. The recommended findings of the proposed report in this case were summarized in the *Railway Age* of November 6, 1937, page 657.

Senate Confirms R. F. C. Directors

The Senate on January 26 confirmed for new two-year terms the five Reconstruction Finance Corporation directors who were reappointed by President Roosevelt on January 20. They are: Chairman Jesse H. Jones of Texas, C. B. Merriam of Kansas, Charles B. Henderson of Nevada, Emil Schram of Illinois and Howard J. Klossner of Minnesota.

M. P. Bus Route

Joint Board No. 215, composed of T. E. Wood of Arkansas, has recommended in a proposed report that the Interstate Commerce Commission grant a certificate to the Missouri Pacific Transportation Company, affiliate of the Missouri Pacific, for common carrier bus services over a specified route between Dardanelle, Ark., and Russellville.

Fletcher Testifies Before House Roads Committee

Judge R. V. Fletcher, vice-president and general counsel for the Association of American Railroads, appeared before the House committee on roads last week to advocate the authorization of a $50,000,000 appropriation for the fiscal year 1939 and a like amount for the fiscal year 1940 for the continuance of the grade crossing elimination program.

Baltimore Traffic Club Silver Anniversary Dinner

The Traffic Club of Baltimore, Md., celebrated its Silver Anniversary at its twenty-fifth annual dinner, held on February 1 at the Lord Baltimore Hotel in that city. Guest speakers were Governor George H. Earle of Pennsylvania and J. Monroe Jackson, assistant secretary of commerce, while the "Forum," a study and debating division of the club, presented a skit entitled "Twenty Five Years Ago."

Fourth Section Relief on Paper

The Interstate Commerce Commission in No. 17043, Paper and Paper Articles in Western Territory, has authorized the railroads, on conditions, to continue and to establish and maintain rates on paper and paper articles, in carloads, from points in western trunk-line territory to destinations in that territory, and from points in the Province of Ontario, Canada, to the same destinations, without observing the long-and-short-haul provision of section 4 of the Interstate Commerce Act.

Rectifiers for Bridge Trains

Two electric railroads, using different means of current collection and operating on different voltages, will use the same trackage in crossing the San Francisco (Cal.)-Oakland Bay bridge. Trains of the Key System will operate on 600 volts third rail, while the Southern Pacific's East Bay interurban system will operate

on 1200 volts trolley. Power for the train operation will be supplied by 20,000 kw. of General Electric mercury-arc rectifiers, which company will also supply the transformers, automatic control, and accessory equipment. Four 2000-kw. and two 1000-kw., 625-volt rectifiers will be installed for the 600-volt third rail Key System, and four 2500-kw., 1300-volt units for the Southern Pacific 1200-volt overhead system. Construction work on the bridge railway was illustrated in the *Railway Age* of January 29, page 251.

"Forty Niner" Speeded Up

The schedule of the "Forty Niner" operated by the Chicago & North Western, the Union Pacific and the Southern Pacific between Chicago and San Francisco, was speeded up on February 3. The train now makes the westbound trip in 50 hr. 2 min., instead of 50 hr. 42 min., a saving of 40 min., and the eastbound trip in 47 hr. 55 min., instead of 49 hr., a saving of 1 hr. 5 min. The train now leaves Chicago at 9:30 a. m., Central time, as previously but arrives in San Francisco at 9:32 a. m. Pacific time instead of 10:12 a. m., while returning it leaves San Francisco at 11:40 a. m. Pacific time instead of 11 a. m. and arrives in Chicago at 1:35 p. m. Central time instead of 2 p. m. The train departs from Chicago on the 2nd, 8th, 14th, 20th and 26th days of each month and from San Francisco on the 5th, 11th, 17th, 23rd and 29th days of the month.

"Engineer Joe Hogan"

An interesting and rather unusual photograph, "Engineer Joe Hogan," is shown on page 274. It was made by L. B. Keller of Clearwater, Fla., and was exhibited last year in the Marshall Field & Company International Salon at Chicago. Great numbers of photographs from the United States and abroad are entered in this competition and it is considered quite an honor to have one accepted for exhibition. More recently the photograph won a contest sponsored by an Atlanta, Ga., publication. Mr. Keller is an amateur and became interested in photography while convalescing from injuries sustained in an airplane crash. J. F. (Joe) Hogan is a veteran engineer on the Atlantic Coast Line, and has served that railroad or its subsidiaries for 51 years. He co-operated heartily with Mr. Keller in the attempt to secure an unusual picture and the one shown is the best of many exposures.

P. R. R. Inaugurates New Pittsburgh-Chicago Train

The Pennsylvania inaugurated a new overnight train in both directions between Pittsburgh, Pa., and Chicago on January 30 as the latest in its fleet of "blue ribbon" trains. The train, named "The Golden Triangle" in honor of Pittsburgh's downtown business and financial district, provides all types of accommodations, including bedrooms, drawing rooms, compartments, sections and berths, as well as coach dining and buffet service. Its inauguration was marked by a brief meeting of civic and railroad officers in the Pittsburgh station, including the mayor, the president of the city Chamber of Commerce, E. W. Smith, operating vice-president, Central region of the Pennsylvania, and R. M. Flocker, general passenger agent.

Westbound, the train leaves Pittsburgh at 11 p. m. and arrives at Chicago at 7:40 a. m. Eastbound, it will depart from Chicago at 11:15 p. m. and arrive in Pittsburgh at 9 a. m.

C. & O. Assumes Control of Erie and Nickel Plate

The Chesapeake & Ohio on January 29, took direct control of the Erie and the New York, Chicago & St. Louis, through the purchase of capital stock from the Alleghany Corporation, top holding company of the Van Sweringen railroads, and the Virginia Transportation Corporation, a Chesapeake & Ohio subsidiary. Chesapeake & Ohio paid the Alleghany Corporation $5,065,475 for 167,000 shares of Nickel Plate common and 215,000 shares of Erie common stock. These holdings represent 49.58 per cent of Nickel Plate and 10 per cent of Erie stocks.

Through an arrangement by which Chesapeake & Ohio will cancel an equal amount of stock it holds in the Virginia Transportation Corporation, C. & O. is obtaining Virginia Transportation's 7.44 per cent interest in the Nickel Plate stock and 45.68 per cent interest in Erie.

The stock authorized to be transferred includes 25,100 shares of Nickel Plate common, 151,405 shares of Erie first preferred, 60,195 shares of Erie second preferred, and 769,800 shares of Erie common.

Car Department Association of St. Louis Organized

The Car Department Association of St. Louis has been organized in St. Louis, Mo., to succeed the Car Foremen's Association. Officers elected for the ensuing year are: president, C. R. Wiegman, chief interchange inspector for the St. Louis & East St. Louis Joint Inspection Bureau; first vice-president, W. P. Elliott, general car foreman of the Terminal Railroad Association; second vice-president, F. E. Cheshire, general car inspector of the Missouri Pacific; third vice-president George A. Marx, general car foreman of the Wabash; secretary, J. J. Sheehan, chief clerk to the master car builder of the Missouri Pacific; and treasurer, F. O. Correll, car foreman for the St. Louis Southwestern.

The regular monthly meeting of the asscciation will be held on the third Tuesday of each month at the Statler hotel. At the initial meeting on February 15, Leonard D. Grisbaum of the Railway Service & Supply Company, Indianapolis, Ind., will speak on Lubrication and Operation.

Wheeler Continues Investigation of Pennroad Corporation

Senator Wheeler's rail finance committee resumed its examination of the activities of Pennroad Corporation on February 2. The witnesses were A. J. County, vice-president in charge of finance and corporate work of the Pennsylvania and a director of Pennroad, and S. H. Ogden, vice-president and treasurer of Pennroad. Senator Wheeler criticized the corporation's reports to stockholders, saying that "Pennroad's reports to its stockholders should contain a detailed breakdown of revenues and expenditures." Mr. Ogden said he did not think this was necessary.

Senator Wheeler summed up his opinion of the annual reports of Pennroad to its stockholders as follows: "It thus appears that Pennroad's reports to its certificate holders have been lacking in frankness, are insufficient to provide its certificate holders with a knowledge of its affairs and are designed to conceal the true facts from them." The next phase of the investigation will be Pennroad's investment in freight-forwarding companies.

Philadelphia Wharfage Case Is Concluded

A controversy concerning top wharfage levied by Philadelphia Piers Inc. and three carriers entering the city of Philadelphia, Pa., on trucks hauling merchandise moved over the railroad owned piers in the port, which the Pennsylvania Public Utility Commission and the City Director of Wharves, Docks and Ferries have sought to invalidate was brought to a close on January 24 when the Supreme Court of the state of Pennsylvania gave jurisdiction over the matter to the U. S. Maritime Commission and upheld an injunction issued by the Common Pleas Court in 1937 restraining the Philadelphia port officials from interfering with collection of the wharfage fee by the defendants. Since the maritime commission has already upheld the right of the carriers to levy the wharfage fee, the Supreme Court decision, in effect, gives support to the collection of the fee and brings the controversy to a close, with victory for the carriers. This case was reported earlier in the *Railway Age* of June 5, 1937, page 951.

"Apache" to Be Discontinued

The "Apache", operated by the Chicago, Rock Island & Pacific and the Southern Pacific, between Chicago and Los Angeles, Cal., will be discontinued on February 13 and its tourist cars and coaches will be combined with the equipment of the Golden State Limited operated by these roads. On the same day the schedule of the Golden State Limited will be changed so as to provide a morning and an evening train out of Chicago. The Golden State Limited will leave Chicago at 10:15 a. m. instead of 9:15 p. m., and will arrive in Los Angeles at 8:30 p. m. instead of 7:20 a. m.

The "Rocket", which the Chicago, Rock Island & Pacific has operated in daylight service between Kansas City and Denver, Colo., since October 18, 1937, will be withdrawn from this service and placed in operation between Kansas City, Mo., and Oklahoma City, Okla., on February 13. It will leave Kansas City at 8:00 a. m. and arrive in Oklahoma City at 3:15 p. m., while returning the same day it will leave Oklahoma City at 3:55 p. m., and arrive in Kansas City at 11:10 p. m.

The "Junior Rocket", a streamlined rail motor car which the Rock Island has operated between Limon, Colo., and Colorado Springs in conjunction with the

Rocket service, will be placed in operation between Peoria, Ill., and Bureau, where it will connect with the main line trains of the Rock Island and thus provide the equivalent of through train service for Peoria. The car will make two round-trips daily.

Club Meetings

The Central Railway Club of Buffalo, N. Y., will hold its next meeting on February 10 in the Hotel Statler, Buffalo. Dr. C. S. Duncan, economist for the Association of American Railroads, will present a paper entitled "Transportation Facilities," discussing especially those faciilities which will likely be preserved in the future and the factors that will likewise determine the relative usefulness of existing facilities.

The Traffic and Transportation Association of Pittsburgh, Pa., will hold its annual dinner in the William Penn Hotel on February 17. W. M. Jeffers, president of the Union Pacific, will be the principal speaker. C. W. Galloway, vice-president of the Baltimore & Ohio, will be toastmaster.

The next lecture in a series sponsored by the Metropolitan Traffic Association of New York at the Hotel Imperial, New York, will be held on February 10 and will concern rates in southern territory (docket 13494 et sup. Orders).

Town Fetes Railroad

Railroads in general and the Delaware, Lackawanna & Western in particular enjoyed the plaudits of an entire suburban community when the Historical Society of Madison, N. J., a typical commuters' habitat, located about 30 miles from New York on the Lackawanna's main line, on January 26 sponsored a community "Railroad Appreciation Day", as was announced in the *Railway Age* for January 22, page 209. As the climax to a day of dinners and speeches, a large bronze tablet commemorating the 100th anniversary of the arrival of the first train in Madison on the old Morris & Essex, constituent road of the Lackawanna, was unveiled in its permanent position in the town's picturesque Gothic passenger station. On its part, the Lackawanna placed representatives of its rolling stock, "groomed and curried" for the occasion, on a handy side track where it played host to about 3,600 Madisonians, or almost one-half of the town's 8,000 population. Joining in the spirit of the occasion, town officials illuminated public buildings and decorated the streets with flags and bunting, while the volunteer fire department trained floodlights on the station.

Hearings Resumed in Milwaukee Case

Hearings in the reorganization proceedings of the Chicago, Milwaukee, St. Paul & Pacific were resumed on February 1 before Finance Director O. E Sweet of the Interstate Commerce Commission. Frederick W. Walker, vice-president of the Northwestern Mutual Life Insurance Company and chairman of a committee of institutional investors, told the commission that in a future "normal year" the Milwaukee will have total gross revenues of $126,900,000 and net income available for interest of $15,894,000. Mr. Walker said that the committee's earnings forecast was based on several broad assumptions which "to it appeared to be reasonable." They were as follows:

That the United States will emerge from the depression with a volume of business as great as the average of the 14 year period from 1921 to 1934, and, with the growth of the country, that volume will be exceeded;

That considering new competition and various efforts being made to offset this, the future average of railroad freight earnings should not fall below the average of the 14 year period by more than 10 per cent; and

That future average of passenger earnings will be 50 per cent of the average of the 14 year period.

C. E. Oliphant, chief statistician of the Milwaukee, submitted the road's complete income account for the year 1937, showing that the carrier had a net deficit of $14,221,271 as compared with a net loss in 1936 of $13,196,108.

Harriman Praises Railroad Good-Will

A plea for decentralization, geographically speaking, of the managements of industry so that headquarters might be located in the territory where each particular industry operates, and the observation that the carriers now are better understood by the public than ever before were sounded by W. A. Harriman, chairman of the Union Pacific, speaking as guest of honor at the Bond Club of New York on January 28. The speaker developed at some length the thesis that all industry would be better understood by the public if the policies were not dictated from New York entirely and if the higher officers had their offices in smaller centers throughout the country.

Concerning the carriers, Mr. Harriman pointed out that the railroads have initiated a national public relations campaign, and "as a result they have corrected some of their deficiencies, and today, although their financial situation is bad, there is a better feeling. Going back over 30-odd years, there has never been a time when there has been a better feeling towards the railroads." The speaker added that "I can say that I and many railroad men feel that the President of the United States is perhaps the best friend of the railroads that we have."

Returning to the subject of the accomplishments of the carriers in building "goodwill," Mr. Harriman declared that such an attainment has not been an accident but "the result of analysis and of finding out what are the steps to be taken to 'get your story across'."

Grand Central Terminal Celebrates Twenty-fifth Year

The New York Central and New Haven roads celebrated, on February 2, the 25th anniversary of Grand Central terminal, their main passenger station in New York City. The formal opening of the terminal took place on February 2, 1913, although the lower level trackage had been previously completed and opened for service. In 1937, 37,454,398 passengers were handled by the roads through the terminal of which 23,788,764 were suburban travelers, mostly commuters, and 13,665,634 were through passengers.

In addition to its functions as a passenger station, Grand Central terminal has also become in the course of its 25 years the center of a great commercial development, due to the profitable utilization of so-called "air rights" over its yard tracks. Thus there have been erected in the terminal area some of New York's largest hotels, office buildings and apartment houses, most of which are served with electricity, hot water and steam from a gigantic power sub-station, the largest in the world, located 100 feet beneath the street level. Altogether the plant serves almost 30 such buildings.

The first Grand Central terminal was built in 1871, two years after the merger of the Hudson River road with the original New York Central. This was rebuilt and considerably enlarged in 1900, and in 1904 actual work on the present terminal was begun on the same site, regular service being maintained throughout the period of construction. The present terminal, with its subsidiaries, covers 79 acres and is served by about 500 trains daily.

Wilgus Urges National Control Body for Carriers

Establishment of a national transport authority to be "headed by men of the highest character and competence," representing present railroad managements, employees and investors and the general public, which will assume ownership and operation of the American railroads, is the "way out for the railroads" suggested by William J. Wilgus, noted civil engineer and consultant on railroad construction and improvement projects, in a letter published in the New York Times of January 30. The author of the letter, after analyzing briefly the "slow death" which the carriers face, dismisses one by one such remedies as are currently suggested as increased rates and fares, the pooling of such increases for the benefit of needy roads, and regional consolidations involving assumption of weak roads by the strong in each geographical subdivision.

The rate increase, Mr. Wilgus claims, will divert traffic to competitors, overburden the farmer and drive Northern traffic to use the so-called Canadian differential routes. Secondly, he sees little hope of the carriers agreeing on pooling. As for regional groupings, the author emphasizes the difficulty of forcing the issue, the probable intensification of unfair divisions of through rates between regions and the possibility, under private consolidations, of what he terms "the objectionable features . . . being revealed before Senator Wheeler's committee in Washington." In addition, Mr. Wilgus is of the opinion that new capital cannot be obtained without "inviting the recurrence of insolvencies."

He urges, therefore, that a national

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MODERN

Lima built power on one of the Southern Pacific's famous "Daylight" trains.

POWER . . .

"Modern locomotives" signify not only modern design but the incorporation in that design of proved factors of economy and capacity.

Such locomotives have minimum weight on driving axles; low dynamic augment; high starting and accelerating capacity; high sustained capacity at high speeds.

These characteristics mean lower operating costs, higher earning capacity and greater net earnings. In many cases they also postpone indefinitely expenditures for heavier track and bridge construction.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

transport authority be set up, representing management, labor, investors and the shipping and traveling public, which would purchase the railroad net-work "on a fair basis" with securities issued by the authority itself. Under this control, Mr. Wilgus would have the various railroad units grouped to stimulate competition, while "administered in the interest of all concerned, including national defense."

By this means, he feels that "the country would have a unified national system of railroads, with the least disturbance of their administrative and operating personnel, with fixed charges at a minimum, with rates tempered where necessary in the public interest as was the wind to the shorn lamb, and with the railroad network better organized for an emergency than was the case when the government, unprepared, was compelled to take it over during the World War.

New Haven Inaugurates Boston-New York Trailer Service

The New York, New Haven & Hartford has recently inaugurated a new service whereby highway trailers owned by motor trucking operators are transported by rail in either direction between New York and Boston, Mass., on specially designed flat cars on regularly-scheduled, expedited freight trains. Thus the railroad performs the line haul in the congested area between the two commercial centres, while the trucks themselves are available for direct origin and destination service. To make possible the operation, loading ramps have been located at New York in the Harlem River yard and in Boston at No. 5 yard, Northern avenue, Boston Freight Terminals.

The service is made available to all highway companies operating between the two cities, and arrangements are made under New Haven tariff I. C. C. F-3528. So far, five large operators have availed themselves of the service—Consolidated Motor Lines, Walker Freight Service, Inc., M. & M. Transportation Company, New England Transportation Company, and Beacon Fast Freight Lines.

The tariff for the railroad service between designated tracks in the two termini is quoted at $32.50 per loaded semi-trailer, one way, and a charge of $16.25 is made for returning empty a trailer previously accorded a loaded movement. A minimum charge of $65 is made when a day's consignment does not exceed one loaded semi-trailer and one of $32.50 when the day's consignment does not exceed one empty semi-trailer. These rates apply only to trailers weighing, with lading, up to 32,500 lb.; on shipments of two trailers made on the same day, the gross weight of the two loaded trailers must not exceed 65,000 lb. A rate of 15 cents per 100 lb. is levied on loadings in excess of these standards.

Freight Car Loading

Loading of revenue freight for the week ended January 22 totaled 570,333 cars, a decrease of 10,267 cars or 1.8 per cent below the preceding week, a decrease of 95,013 cars or 14.3 per cent below the corresponding week in 1937, and a decrease of 276,822 cars or 32.7 per cent below the same week in 1930. All commodity classifications except live stock and forest products showed decreases under the preceding week, while all commodity classifications except grain and live stock showed decreases under last year. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading

For Week Ended Saturday, January 22

Districts	1938	1937	1936
Eastern	124,209	151,137	133,047
Allegheny	103,832	139,801	106,375
Pocahontas	39,244	48,259	44,366
Southern	91,362	97,942	92,766
Northwestern ...	68,751	75,792	66,373
Central Western.	93,774	101,419	89,775
Southwestern ...	49,161	50,996	51,935
Total Western Districts	211,686	228,207	208,083
Total All Roads.	570,333	665,346	584,637
Commodities			
Grain and Grain Products	36,151	29,514	29,111
Live Stock	15,573	12,746	12,534
Coal	125,106	154,112	147,550
Coke	6,725	12,173	9,672
Forest Products.	27,242	30,133	28,306
Ore	7,159	9,972	5,281
Merchandise l.c.l.	145,547	158,677	144,181
Miscellaneous ...	206,830	258,019	208,002
January 22	570,333	665,346	584,637
January 15	580,600	696,035	611,347
January 8	552,314	700,046	614,853
January 1	457,359	588,263	541,826
December 25 ..	.....	460,367	562,578
Cumulative Total, 3 Weeks	1,703,247	2,061,427	1,810,837

Canada's Loadings Top Last Year's.—Car loadings for the week ended January 22 totaled 45,905, as compared with 45,471 for the previous week and 45,612 for the corresponding week in 1937, according to the weekly statement of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
January 22, 1938.....	45,905	24,692
January 15, 1938.....	45,471	22,832
January 8, 1938.....	44,024	20,328
January 23, 1937.....	45,612	25,971
Cumulative Totals for Canada:		
January 22, 1938.....	135,400	67,852
January 23, 1937.....	137,906	79,557
January 18, 1936.....	114,761	64,334

Shippers Advisory Board Meets in Philadelphia

A 3.79 per cent increase in carloadings for the first quarter of 1938 as compared with the corresponding period of 1937 was predicted in the commodity forecast announced by the Atlantic States Shippers Advisory Board at its 14th annual and forty-fifth regular meeting held on January 27 in the Hotel Warwick, Philadelphia, Pa. This increase, however, was predicted largely upon the 25 per cent estimated increase in carloadings of coal and coke, which commodities compose by far the largest items on the carriers traffic lists in this territory. Apart from slight increases in potatoes and fresh fruits, due to large storehouse stocks, decreases ranging from 5 to 50 per cent are estimated in all the remaining commodity classes, including a 35 per cent decrease in oil and concentrates, a 25 per cent decrease in iron and steel, a 33 per cent decrease in cement and a 50 per cent decrease in chemicals and explosives. While no official statement was made on less-than-carload shipments, 12 large shippers on the board membership anticipate decreases for the first quarter ranging up to 30 per cent, while two shippers anticipate increases from 5 to 15 per cent. It was revealed in the commodity report that the board estimate for carloadings for 1936 were but 3.42 per cent below the actual figure.

During the business meeting of the board it was voted that a committee of five be appointed to consider the decision of the Interstate Commerce Commission in Ex Parte 104, part II, proceedings, concerning railroad-shipper switching relationships. Resolutions were also adopted opposing statutory rate making as suggested in the southern governor's rate complaint, now pending before the commission, and the Ramspeck Bill and opposing political interference with the commission. According to the report of the railroad contact committee (oral presentation was omitted to preserve time), the car and motive power supply of reporting carriers in the board's district has been adequate, in spite of the fact that maintenance of equipment has suffered from the reduction of shop forces. A special committee of seven, appointed to consider meritorious subjects of a general nature, reported opposition to the proposal that a motor truck committee be established as a standing committee of the board as being superfluous.

A. P. Stevens, district manager, Association of American Railroads, reported that under the jurisdiction of his office a series of meetings were held in key points of the district with employees charged with car handling. Here car service rules were explained and discussed and strict observance of car service rules was urged by railroad officers. The legislative committee reported in regard to its consideration of the train limit bill now pending that subcommittees have been organized in every congressional district in the board's territory to hold personal interviews with Congressmen. A board officer has also been appointed to appear before the house committee on interstate and foreign commerce to express the views of the board membership opposing the measure.

W. C. Kendall, chairman, Car Service Division, Association of American Railroads, in a summary of national transportation conditions, praised the accuracy of carloading predictions of the 12 regional boards, pointing out that only in 1933 and in the last quarter of 1937, when traffic fell off at a rapid rate, were predictions on the whole substantially erroneous. Discussing the work of his division and car construction problems, he pointed out that serious consideration is being given to the introduction of a ventilated box car suited for service also as a standard box car. The report of the loss and damage prevention committee, presented by W. W. Pierce, past chairman, recorded that sub-committees had been appointed to study problems of glass packing and crating and damage by freezing. At the meeting of the committee on January 26, W. H. Frazer, traffic manager, F. W. Woolworth Company, was elected chairman to replace Mr. Pierce. The meeting of the committee on this date and the special evening session

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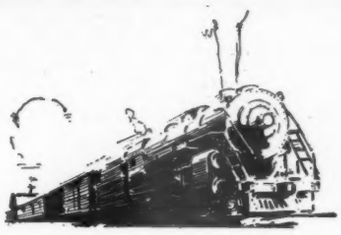
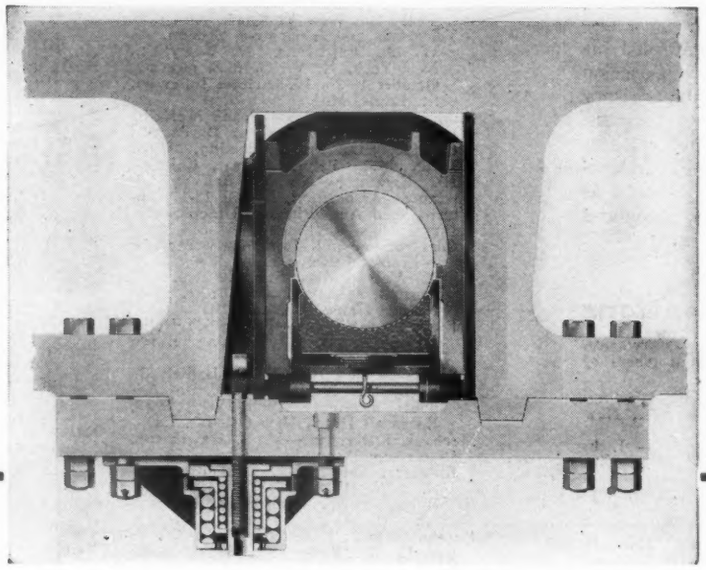
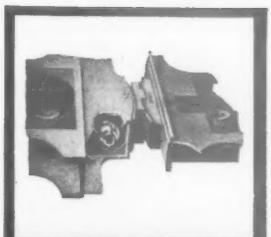


UNIFORM ADJUSTMENT

...that stays adjusted



The Franklin Automatic Compensator and Snubber takes entire charge of the driving box wedge job. » » » The adjustment of every driving box on the engine is the same. » » » Regardless of wear; expansion due to temperature change; or unusual service conditions, this predetermined adjustment is constantly maintained. » » » Wear and expansion are compensated for by the compensator member. For unusual shocks a yielding, cushioned resistance is provided by the snubber. This avoids any air gap or slack, eliminates all possibility of pounding or stuck boxes and avoids excessive stresses on frame, bearings or rods. » » » It assures lower locomotive maintenance, freedom of vertical movement of the box and an easier riding locomotive. » » » Its twin, the Type E-2 Radial Buffer, takes the job of maintaining correct relationship between engine and tender and further improves the riding of the locomotive.



Franklin Type E-2 Radial Buffer dampens oscillation between engine and tender and makes for easier riding.

Franklin parts fit—in applying them there is no labor cost for fitting. They are built to original dimensions of carefully selected materials—they avoid road failures and excessive maintenance.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

on traffic problems were reported in the *Railway Age* of January 29, page 253.

At the luncheon of the board, W. F. Garcelon, who has been chairman of the New England Shippers Advisory Board since its inception in 1925, presented an address, substituting for R. W. Brown, vice-president, Reading-Central of New Jersey, who was "tied-up" in a train limit bill hearing at Washington, D. C. The speaker reviewed briefly the railroad situation and the rate hearings now before the Interstate Commerce Commission. He was especially forceful in his opposition to "getting the commission into politics" and contended that members of the commission should be men of practical experience. In illustration of this, he related an anecdote stating that once, when a congressional committee investigated qualifications of a nominee for membership on the commission discovered he had recently been discharged by a railroad, they confirmed his appointment immediately. Mr. Garcelon also seconded the resolution of the advisory board opposing rate making by Congress.

W. W. Pierce was elected general secretary of the board, replacing F. M. Varrah. The next meeting is to be held at Reading, Pa., the date to be announced later.

Meetings and Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—R. P. Ives, Westinghouse Air Brake Co., 350 Fifth Ave., New York, N. Y.

ALLIED RAILWAY SUPPLY ASSOCIATION. — J. F. Gettrust, 1108 New Post Office Bldg., Chicago, Ill.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., 327 S. La Salle St., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS. — E. P. Soebbing, 1431-B Railway Exchange Bldg., St. Louis, Mo. Annual meeting, October 11-13, 1938, San Francisco, Cal.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—B. D. Branch, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting June 7-9, 1938, Hotel Stevens, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS. — E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 S. Federal St., Chicago, Ill. Annual meeting, October 10-12, 1938, St. Paul, Minn.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, October 18-20, 1938, Hotel Stevens, Chicago, Ill.

AMERICAN RAILWAY CAR INSTITUTE.—W. C. Tabbert, 19 Rector St., New York, N. Y.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION. —E. J. Hoddy (Second Vice-Pres.), Louisville & Nashville R. R. Louisville, Ky. Next meeting, June, 1938, Montreal, Que.

AMERICAN RAILWAY ENGINEERING ASSOCIATION. —Works in co-operation with the Association of American Railroads, Engineering Division.—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION. — M. W. Jones, Baltimore & Ohio R. R., Mt. Royal Station, Baltimore, Md.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS. —C. E. Davies, 29 West 39th St., New York, N. Y. Spring meeting, March 23-25, 1938, Hotel Biltmore, Los Angeles, Cal.

Railroad Division.—Marion B. Richardson, 21 Hazel Ave., Livingston, N. J.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y. Annual meeting, September 19-23, 1938, Auditorium, Atlantic City, N. J.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, 1939, Washington, D. C.

ASSOCIATION OF AMERICAN RAILROADS — H. J. Forster, Transportation Bldg., Washington, D. C.

Operations and Maintenance Department. —J. M. Symes, Vice-President, Transportation Bldg., Washington, D. C.

Operating-Transportation Division. — L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Transportation Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Freight Station Section.—L. R. Knott, 59 E. Van Buren St., Chicago, Ill.

Operating Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Telegraph and Telephone Section. — W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, October 18-20, 1938, Hotel Jefferson, St. Louis, Mo.

Engineering Division. — Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill. Exhibit by National Railway Appliances Association, March 14-17, International Amphitheatre, Union Stockyards, Chicago, Ill.

Construction and Maintenance Section. —Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 15-17, 1938, Palmer House, Chicago, Ill.

Electrical Section.—Frank McNellis (Asst. Secy.), 59 E. Van Buren St., Chicago, Ill.

Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y. Annual meeting, April 5-7, 1938, Roosevelt Hotel, New Orleans, La.

Mechanical Division.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.

Electrical Section.—J. A. Andreucetti, C. & N. W. Ry., 1519 Daily News Bldg., 400 W. Madison St., Chicago, Ill.

Purchases and Stores Division.—W. J. Farrell, 30 Vesey St., New York, N. Y.

Freight Claims Division.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, June 7-9, 1938, Chicago, Ill.

Motor Transport Division.—George M. Campbell, Transportation Bldg., Washington, D. C.

Car-Service Division. — E. W. Coughlin, Transportation Bldg., Washington, D. C.

Finance, Accounting, Taxation and Valuation Department.—E. H. Bunnell, Vice-President, Transportation Bldg., Washington, D. C.

Accounting Division. — E. R. Ford, Transportation Bldg., Washington, D. C. Annual meeting, 1938, Toronto, Ont.

Treasury Division.—E. R. Ford, Transportation Bldg., Washington, D. C.

Traffic Department.—A. F. Cleveland, Vice-President, Transportation Bldg., Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—F. L. Johnson, Claim Agent, Alton R. R., 340 W. Harrison St., Chicago, Ill. Annual meeting, May 18-20, 1938, Statler Hotel, St. Louis, Mo.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS. —(See Association of American Railroads.—Mechanical Division.—Electrical Section.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—W. S. Carlisle, National Lead Company, 900 W. 18th St., Chicago, Ill. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB. — C. R. Crook, 2271 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—Frank Kartheiser, Chief Clerk, Mechanical Dept., C. B. & Q., Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CAR DEPARTMENT ASSOCIATION OF ST. LOUIS, MO. —J. J. Sheehan, 1101 Missouri Pacific Bldg., St. Louis, Mo. Regular meetings, Third Tuesday of each month except June, July and August, Statler Hotel, St. Louis, Mo.

CENTRAL RAILWAY CLUB OF BUFFALO.—Mrs. M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month except June, July and August, Hotel Statler, Buffalo, N. Y.

EASTERN ASSOCIATION OF CAR SERVICE OFFICERS. J. T. Bougher, 424 W. 33rd St. (11th floor), New York, N. Y. Next meeting, March 31, 1938, Cleveland, Ohio.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—F. T. James, General Foreman, Delaware, Lackawanna & Western, Kingsland, N. J.

INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—Clyde S. Bailey, 806-808 13th and E Sts., N. W., Washington, D. C. Annual meeting, November 15-18, 1938, New Orleans, La.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. H. White, Room 1826, 208 S. La Salle St., Chicago, Ill. Exhibit at A. R. E. A. Convention, March 14-17, 1938, International Amphitheatre, Union Stockyards, Chicago, Ill.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Reguler meetings, second Tuesday of each month, except June, July, August and September, Hotel Touraine, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July, August, September and December, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB.—William S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately at San Francisco and Oakland, except June at Los Angeles and October at Sacramento.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton, First National Bank Bldg., Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. McC. Price, Allen-Bradley Company, 600 W. Jackson Blvd., Chicago, Ill.

RAILWAY FIRE PROTECTION ASSOCIATION.—P. A. Bissell, 40 Broad St., Boston, Mass.

RAILWAY FUEL AND TRAVELING ENGINEERS' ASSOCIATION.—T. Duff Smith, 1255 Old Colony Bldg., Chicago, Ill.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION. —J. D. Conway, 1941 Oliver Bldg., Pittsburgh, Pa. To meet with Mechanical Division and Purchases and Stores Division, Association of American Railroads.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. A. R.

RAILWAY TIE ASSOCIATION.—Roy M. Edmonds, 903 Syndicate Trust Bldg., St. Louis, Mo.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—C. A. Lichty, 319 N. Waller Ave., Chicago, Ill. Annual meeting, September 20-22, 1938, Hotel Stevens, Chicago, Ill.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. A. R., Signal Section.

SOCIETY OF OFFICERS, UNITED ASSOCIATIONS OF RAILROAD VETERANS.—J. W. O'Neill, Delaware, Lackawanna & Western, Hoboken, N. J. Annual meeting, October 8, 1938, Chicago, Ill.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB. —A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—D. W. Brantley, C. of Ga. Ry., Savannah, Ga.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—H. W. Leighton (President), H. W. Leighton Company, 565 W. Washington St., Chicago, Ill.

TORONTO RAILWAY CLUB.—D. M. George, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, fourth Monday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—Lewis Thomas, Q. & C. Company, 59 E. Van Buren St., Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

WESTERN RAILWAY CLUB.—C. L. Emerson, C. M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

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NO. 52 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

KANDER VIADUCT

SWITZERLAND

The Kander Viaduct carries the single track of the electrified Loetschberg Railway, which connects at Brigue with the International Simplon and is part of the Berne-Simplon-Loetschberg main line.

Built of stone, it is 90 feet above the valley bottom and spans a distance of 920 feet in eleven masonry arches.

In the background can be seen the snow-capped summits of the Balmhorn and Altels Ranges rising 12,200 feet high.

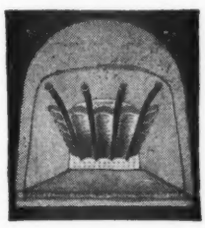
* * *

Another type of arch, The Security Brick Arch for the locomotive firebox is equally important in modern train operation. Security Arches correctly designed and properly maintained assure maximum fuel economy and full steaming capacity.

THERE'S MORE TO SECURITY ARCHES THAN JUST BRICK

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.

Locomotive Combustion Specialists

Equipment and Supplies

Equipment Orders Few in January

Export order only bright spot in the record; rail orders reach 65,550 tons

During January, domestic equipment purchasers placed orders for a total of 9 locomotives,—6 steam and 3 Diesel-electric—and for 25 freight cars, the latter being a single order for 25 hoppers. No passenger-trains were ordered during the period. During January, 1937, orders were placed for 46 locomotives, 10,881 freight cars and 70 passenger-train cars. The export market yielded a single order for 250 freight cars for the Paulista Railway of Brazil. This compares with an export order for 2 locomotives reported during January, 1937.

The rail market showed considerable activity during the month and gave domestic rolling mills orders for a total of 65,550 tons. This tonnage exceeds that of any month in the year 1937 except December, when 100,420 tons were ordered.

Domestic Equipment Orders Reported in Issues of The Railway Age in January, 1938

LOCOMOTIVES

Date	Name of Company	No.	Type	Builder
Jan. 8	Chicago, Milwaukee, St. Paul & Pacific	6	4-6-4	American Locomotive Co.
Jan. 15	Chicago & Eastern Illinois	2	Diesel-electric Sw.	Electro-Motive Corp.
		1	Diesel-electric Sw.	American Locomotive Co.

FREIGHT CARS

Jan. 29	Chesapeake & Ohio	25	Hopper	American Car & Foundry

New York, New Haven & Hartford Program

The New York, New Haven & Hartford contemplates the purchase of 7,580 tons of 131-pound rail and accompanying track materials, at a total cost of $587,000, the remodelling into modern coaches of 50 cars formerly used on the New York, Westchester & Boston, at a total cost of $700,000, and the overhauling and modernizing of 100 of the New Haven's old standard steel coaches at a cost of $553,000, in petitions presented today to the United States District Court. Hearing on the petitions has been set for February 11.

Electrical equipment which was required for operation of the Westchester cars, which are of the multiple-unit type, will be removed, the center doors will be taken out and replaced with wall sections and windows, sliding end-doors will be changed to swinging doors, baggage racks will be installed, the cars will be equipped with a modern steam heating system, and they will be furnished with the latest type of comfortable seats.

The 100 standard steel cars also will have all the old type of seats replaced with present-day more comfortable seats, modern lighting will be installed, new steam piping with thermostatic heat control, and new floors.

These remodelled cars will be in addition to the 50 new streamlined coaches which the court has authorized and which will bring to a total of 200 the number of that type of coach owned by the New Haven. The court also authorized the purchase of 10 Diesel-electric switching locomotives. See item in *Railway Age* of January 22, page 213.

Missouri Pacific Improvements

The expenditure of $7,621,153 for improvement to right-of-way and rolling stock of the Missouri Pacific and six subsidiaries has been authorized by the federal district court at St. Louis. Of this amount, $7,008,973 will be expended on Missouri Pacific property. Of the latter amount $5,890,933 is for work on roadbeds and the purchase and laying of new rails, and $1,118,040 is for equipment and shop improvement. Among the improvements included in the schedule are those at the roundhouse and shops in St. Louis to cost $103,840, the construction of bridges, grade crossings, stations and shops and the repair of locomotives, passenger and freight cars.

In addition to this amount, the district court later approved a budget of $1,769,660 for improvements this year on the lines of the International-Great Northern and the New Orleans, Texas & Mexico.

LOCOMOTIVES

THE GRAND TRUNK WESTERN has ordered six streamlined high-speed locomotives of the 4-8-4 type for passenger service from the Lima Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of December 25, 1937, page 930.

THE CHICAGO & NORTH WESTERN, which has requested bids for conventional steam locomotives, Diesel-electric locomotives and steam turbine electric locomotives, is also asking for bids on turbine mechanical locomotives.

IRON AND STEEL

READING.—A contract has been given to the Phoenix Bridge Company, Philadelphia, Pa., for approximately 230 tons of structural steel for the reconstruction of Bridge No. 04/93 over Lancaster avenue on the Reading Belt Line of the Reading Company in Reading, Pa.

Supply Trade

The Thomas Grate Bar Company, Birmingham, Ala., has changed its name to **Thomas Foundries, Inc.**, effective February 1.

The Modern Supply Company, Chicago, has been appointed sales representative for the **Standard Brake Shoe & Foundry Company**, Pine Bluff, Ark.

Frederick T. Robertson has been appointed vice-president of the **Lewis Bolt & Nut Co.**, Minneapolis, Minn. After

Frederick T. Robertson

obtaining his engineering degree, Mr. Robertson was employed by the Canadian Pacific and the Chicago, Burlington & Quincy. Later he worked for Consoer, Older & Quinlan, consulting engineers, Chicago, and for the last six years has been in the employ of the Lewis Bolt & Nut Co.

Charles R. Moffatt, advertising manager of the Carnegie-Illinois Steel Corporation and director of exhibits of the United States Steel Corporation, has been

Charles R. Moffatt

appointed director of advertising for the United States Steel Corporation of Delaware, with headquarters at Pittsburgh, Pa., where the advertising and exhibit activities have been combined. Mr. Moffatt was born in LeSueur, Minn., on May 15,

Continued on next left-hand page

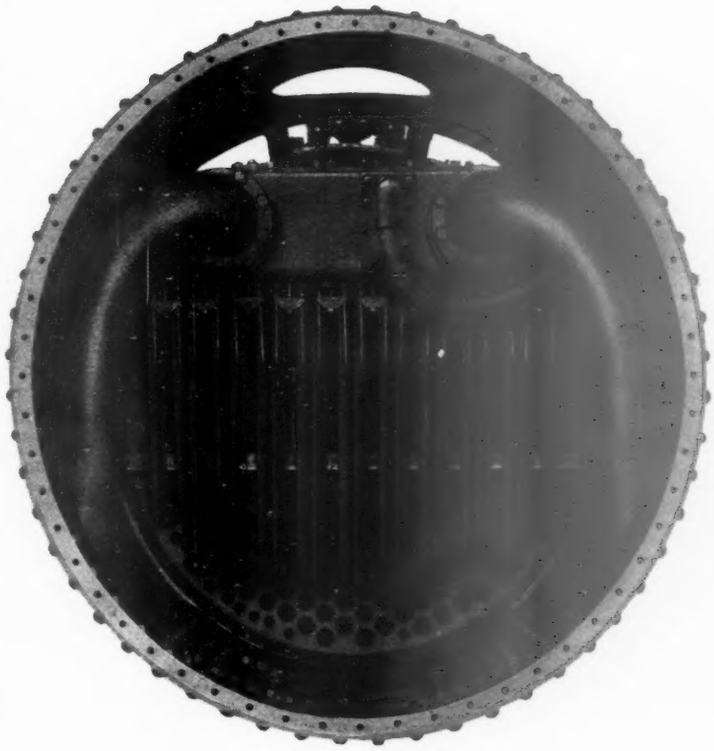
Santa Fe Locomotive Makes *Record* Run

Atchison, Topeka & Santa Fe locomotive #3461 is believed to have made the longest continuous run ever made by a steam locomotive in regular schedule train service. It hauled a dynamometer car and from ten to twelve conventional heavy steel cars from Los Angeles to Chicago, a distance of 2,227.3 miles.*

The boiler of the locomotive has an Elesco Type "E" superheater, and provides the largest evaporating and superheating surfaces within clearance limits.

The American multiple-valve throttle in this locomotive is provided with small steel valves. As small steel valves do not warp, there is no possibility of leakage.

* Extract from editorial in Railway Age, Dec. 25, 1937



Representative application of an Elesco Type "E" superheater with an American multiple-valve throttle integral with the superheater header.

ELESCO

A-1206

THE SUPERHEATER COMPANY

Representative of AMERICAN THROTTLE COMPANY, INC.
60 East 42nd Street, NEW YORK
122 S. Michigan Avenue, CHICAGO
Canada: THE SUPERHEATER CO., LTD.
MONTREAL

Superheaters « Feed Water Heaters « Exhaust Steam Injectors « Superheated Steam Pyrometers « American Throttles « Tangential Steam Dryers

1887, and entered the employ of the United States Steel Corporation in 1907, in the invoice department of the Illinois Steel Company in Chicago. A year later he was transferred to the voucher department and four years later, in 1912, was appointed traveling auditor. In 1919 he was transferred to the sales department as manager of the statistical department and advertising manager. He held these positions until the Illinois Steel Company was consolidated with the Carnegie Steel Company in 1935, when, on October 1, 1935, he was appointed advertising manager of the Carnegie-Illinois Steel Corporation, with headquarters at Pittsburgh. On July 1, 1935, he was appointed director of exhibits of the United States Steel Corporation.

J. C. McCune, assistant director of engineering of the **Westinghouse Air Brake Company,** has been appointed to the newly-created position of director of research, with headquarters at Wilmerding, Pa. Mr. McCune was graduated from

J. C. McCune

Cornell University in mechanical engineering with the class of 1911. He entered the employ of the Westinghouse Air Brake Company in 1913, as assistant to the chief engineer and, after two years, was transferred to the New York office as mechanical expert, which position he held from 1915 to 1917. He then served on the Mexican border with the seventh regiment New York National Guards, and later in the World War as first lieutenant of engineers of the United States Army, with 10 months' service in France. At the conclusion of the war, he returned to the Westinghouse Air Brake Company as a special engineer at Wilmerding. In 1920 he returned to the New York office as assistant to the district engineer, and a few months later was made assistant district engineer. In 1922 he was promoted to the position of district engineer. A further promotion came in 1926, when he returned to Wilmerding to serve as assistant director of engineering, which position he held until his recent appointment as director of research.

A. W. Carey, traffic manager of the **Tennessee Coal, Iron & Railroad Company** since 1907, has retired under the United States Steel Corporation's retirement plan, and is succeeded by his assistant, **John Henry Schroeder.** Mr. Carey

Blackstone Studios

A. W. Carey

was born on January 20, 1868, at Glen Haven, N. Y.; he has served the United States Steel subsidiaries for more than 38 years. In the Pittsburgh area he attended Sewickly Academy and the Western Pennsylvania Classical and Scientific Institute, preparing for law practice. With the exception of a brief period in the brokerage business, Mr. Carey's entire career was associated with the traffic field. He served from 1885 to 1889 consecutively, on the Baltimore & Ohio, the Pennsylvania, the Missouri Pacific, the Cleveland, Canton & Southern, (now part of the Wheeling & Lake Erie), and the Wheeling & Lake Erie. Mr. Carey later joined the United States Steel Corporation as chief clerk to the traffic manager of the National Tube Company at Pittsburgh, Pa., and then was transferred to Kewanee, Ill., where he served three years as traffic manager of the Western Tube Company before going to Birmingham,

Greystone Studios, Inc.

J. H. Schroeder

Ala., to join the Tennessee Coal, Iron & Railroad Company. Mr. Carey has a wide acquaintance throughout the shipping industry. He is regional vice-president of the National Industrial Traffic League, vice-president of the Associated Traffic Clubs of America, executive committee member of the Southern Traffic League, and locally, president of the Birmingham Traffic & Transportation Club, having been elected last March for a one-year term.

John Henry Schroeder, who has been appointed traffic manager of the Tennessee Coal, Iron & Railroad Company, was born on May 5, 1885, at Pittsburgh, Pa., where he joined the traffic department of the Pennsylvania railroad in 1900. His connection with the United States Steel Corporation began in 1914, when he joined the American Bridge Company. On August 1, 1933, Mr. Schroeder went to Birmingham, Ala., as assistant traffic manager of the Tennessee Coal, Iron & Railroad Company. He is a member of a number of organizations including the Birmingham Traffic & Transportation Club, the Alabama Iron & Steel Shippers Conference, the Southeast Shippers Advisory Board, and the Pittsburgh Traffic & Transportation Club.

Construction

ATCHISON, TOPEKA & SANTA FE.—A contract for the construction of a new wing for the Coast Lines hospital of this company at Los Angeles, Cal., has been awarded to the Pozzo Construction Co., Ltd., Los Angeles. The new wing will be six stories high and of steel and concrete construction. The first floor will accommodate the out-patient, ear-nose-throat and therapy departments; the second floor will contain the administration offices, the central diet kitchen, the library and the pharmacy; the third, fourth and fifth floors will be devoted to bedrooms; and the sixth floor will quarter the internes. Construction of the building will be undertaken immediately and will be brought to a conclusion in about nine months.

DENVER & RIO GRANDE WESTERN—CHICAGO, BURLINGTON & QUINCY—DENVER & SALT LAKE.—The Interstate Commerce Commission, Division 4, has authorized these roads to construct 2.4 miles of main line tracks in the city of Denver, Colo. The decision also authorizes the joint use by these roads of 4.7 miles of main line tracks in Denver. The cost of constructing the lines and the other tracks necessary to facilitate the new operating arrangements is estimated by the companies as follows: Denver & Salt Lake, $73,199; Denver & Rio Grande Western, $14,173, and Burlington, $6,989.

READING.—Contracts have been let to Thomas Earle & Sons, Inc., Philadelphia, Pa., for grading, masonry, paving and appurtenant work, to the Phoenix Bridge Company, Philadelphia, for the steel superstructure, and to Martin & Breen Company, Philadelphia, for waterproofing, in connection with the reconstruction of Bridge No. 04/93 over Lancaster avenue on the Reading Belt Line of the Reading Company in Reading, Pa., to cost about $67,273.

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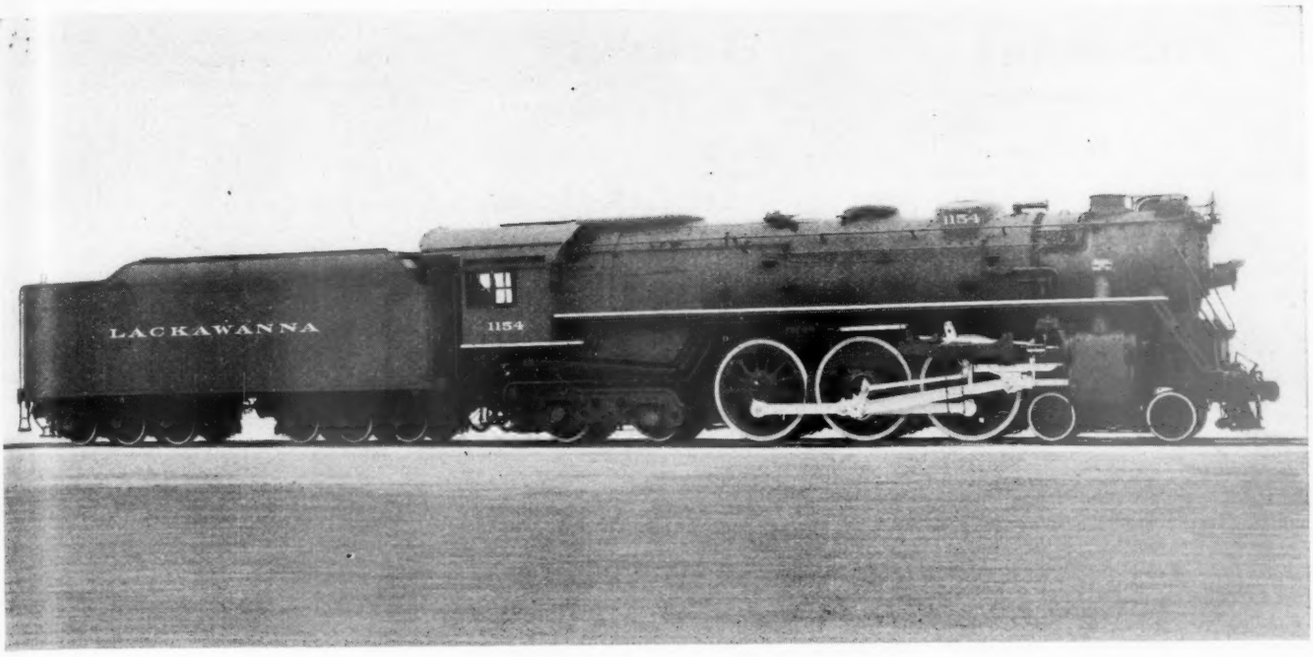
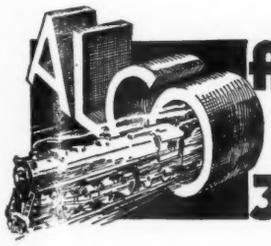


FIRST 4-6-4 TYPE ON THE LACKAWANNA

Designed to handle fast
passenger train service
between Hoboken and Buffalo.

NEW POWER — NEW PROFITS

Weight on Drivers	198,000 pounds	Diameter of Drivers	80 inches
Weight of Engine	377,000 pounds	Boiler Pressure	245 pounds
Cylinders	26 x 30 inches	Tractive Power	52,800 pounds



AMERICAN LOCOMOTIVE COMPANY

30 CHURCH STREET · NEW YORK · N·Y

Financial

BOSTON & MAINE.—*RFC Loan Approved.*—The Interstate Commerce Commission, Division 4, has conditionally approved a loan to this company by the Reconstruction Finance Corporation of $2,000,000, the proceeds to be used to pay rents, principal and interest on certain maturing notes and bond issues.

CHICAGO & NORTHWESTERN.—*Reorganization.*—Several briefs have been filed to assist the Bureau of Finance in preparing its so-called "interim report" setting forth its views regarding the major principles which must govern the reorganization of this company. Briefs have been filed by the debtor company, the Irving Trust Company, trustee under the first mortgage of the Milwaukee & State Line, and the committee representing the holders of secured notes of the C. & N. W. Briefs have also been filed by the United States Trust Company of New York as trustee under the general mortgage and by the Mutual Savings Bank Group Committee.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Reorganization.*—This company has filed with the Interstate Commerce Commission a protest against any further moves toward its reorganization at this time. However, recognizing that the commission is desirous of an early reorganization, the debtor company filed an outline of principles which it contended should govern the recapitalization if it is forced at this time. At the same time the institutional investors' committee, of which Frederick W. Walker, vice president of the Northwestern Mutual Life Insurance Company, is chairman, filed certain modifications of its pending plan.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.*—The Providence, Warren & Bristol has filed with the Interstate Commerce Commission a plan of reorganization which contemplates certain minor modifications of that filed by the New Haven.

PITTSBURGH & WEST VIRGINIA.—*Extension of Note.*—This company has applied to the Interstate Commerce Commission for authority to extend or renew its six per cent unsecured note or notes in the sum of $250,000.

SOUTHERN.—*Stock.*—The Interstate Commerce Commission, Division 4, has authorized this company to issue 1,298,200 shares of common capital stock of no par value, to be exchanged on a share-for-share basis for a like number of shares of outstanding common capital stock with a par value of $100 a share. With the completion of this transaction, the company will have changed all its par value common stock to a common stock with no par value.

Dividends Declared

Bangor & Aroostook. — 63c, quarterly; Preferred, $1.25, quarterly, both payable April 1 to holders of record February 28.

Average Prices of Stocks and Bonds

	Feb. 1	Last week	Last year
Average price of 20 representative railway stocks..	29.15	30.22	54.15
Average price of 20 representative railway bonds..	62.42	62.17	83.98

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

H. S. Macon has been appointed freight claim agent of the International-Great Northern, with headquarters at Palestine, Tex., to succeed **T. M. Clark,** who has retired.

Howard W. Kerns, district freight claim agent of the Pennsylvania, with headquarters at Chicago, has been promoted to assistant freight claim agent on the system traffic staff at Philadelphia, Pa., succeeding the late **R. E. Hamilton.**

J. B. Early has been appointed assistant treasurer of the Southern, the Alabama Great Southern, the New Orleans & Northeastern, the Georgia Southern & Florida and the Northern Alabama, succeeding **E. P. Hunter,** deceased. **W. P. Hopper** has been appointed cashier, succeeding Mr. Early.

OPERATING

F. W. Okie has been appointed superintendent of the Mobile division of the Southern, with headquarters at Selma, Ala., to succeed **W. D. Post,** who has been appointed superintendent of agencies, with headquarters at Chattanooga, Tenn., in which capacity he will assist in handling freight claim prevention matters.

B. J. Quilty, superintendent on the Canadian Pacific, with headquarters at Sudbury, Ont., has been appointed general superintendent of the Algoma district, with headquarters at North Bay, Ont., succeeding **T. Hambley,** deceased. **F. M. Donegan,** assistant superintendent at Farnham, Que., has been appointed superintendent of the Sudbury division.

E. S. Buckmaster, general agent for the Railway Express Agency at Chicago, has been appointed superintendent of agencies, with the same headquarters, to succeed **I. Longaker,** who has retired after 48 years service with express companies. The position of general agent has been abolished, but Mr. Buckmaster will continue to have jurisdiction over commercial activities in the Chicago department.

H. D. Barber, assistant to vice-president in charge of operation of the Erie, with headquarters at Cleveland, Ohio, has been appointed general manager of the Eastern district, with headquarters at New York, succeeding **William White,** who has resigned to become general manager of the Virginian. **P. W. Johnston,** assistant general manager at Youngstown, Ohio, has been appointed assistant to vice-president at Cleveland, succeeding Mr. Barber. **R. C. Randall,** superintendent of the Terminal division at Jersey City, N. J., has been appointed assistant general manager of the Western district at Youngstown, to succeed Mr Johnston. **J. W. Graves,** superintendent of the Susquehanna, Tioga & Delaware division, with headquarters at Hornell, N. Y., has been appointed assistant general manager at New York, succeeding **R. H. Boykin,** who has been appointed superintendent at Dunmore, Pa. **P. M. Donnellan,** superintendent of the Alleghany, Bradford and Meadville divisions, has been transferred in the same capacity to the Susquehanna, Tioga & Delaware division, at Hornell, succeeding Mr. Graves. **H. R. Adams,** superintendent of the Wyoming and Jefferson division at Dunmore, has been transferred in the same capacity to Salamanca, N. Y., to succeed Mr. Donnellan. **A. E. Kriesien,** trainmaster at Marion, Ohio, has been appointed superintendent of the Terminal division, succeeding Mr. Randall.

TRAFFIC

W. S. Hyman has been appointed district passenger agent of the Southern, with headquarters at Miami, Fla., **G. F. Grafton** has been appointed traveling passenger agent, with headquarters at Atlanta, Ga.

H. W. Bondurant, assistant freight traffic manager on the Southern, with headquarters at Atlanta, Ga., has been promoted to freight traffic manager, with headquarters at Cincinnati, Ohio, succeeding **Ralph J. Brown,** who has been appointed general freight traffic manager at Washington, D. C. **J. A. Cooper,** assistant general freight agent at Knoxville, Tenn., has had his title changed to assistant freight traffic manager. **P. W. Jacks** has been appointed general agent, freight and passenger departments, with headquarters at Houston, Tex., to succeed **T. L. Dyer,** transferred.

Ralph J. Brown, freight traffic manager of the Southern system, with headquarters at Cincinnati, Ohio, has been appointed general freight traffic manager, with headquarters at Washington, D. C. **F. H. Brown,** assistant general freight agent, with headquarters at Atlanta, Ga., has been appointed assistant freight traffic manager, with the same headquarters, succeeding **H. W. Bondurant. B. G. Brown,** general freight traffic manager, with headquarters at Washington, D. C., has been appointed coal traffic manager, with the same headquarters. **A. L. Day** has been appointed assistant general freight agent, with headquarters at Atlanta, succeeding F. H. Brown. **C. S. Edmundson** has been appointed district freight and passenger agent, with headquarters at Tuscaloosa, Ala., succeeding **Earl Brown.** The above appointments will become effective February 1.

J. A. Edwards, general western passenger agent of the Southern, with headquarters at Chicago, has been appointed assistant passenger traffic manager, with headquarters at Cincinnati, Ohio, to succeed **H. F. Cary,** who has retired, effective February 1, after 43 years service

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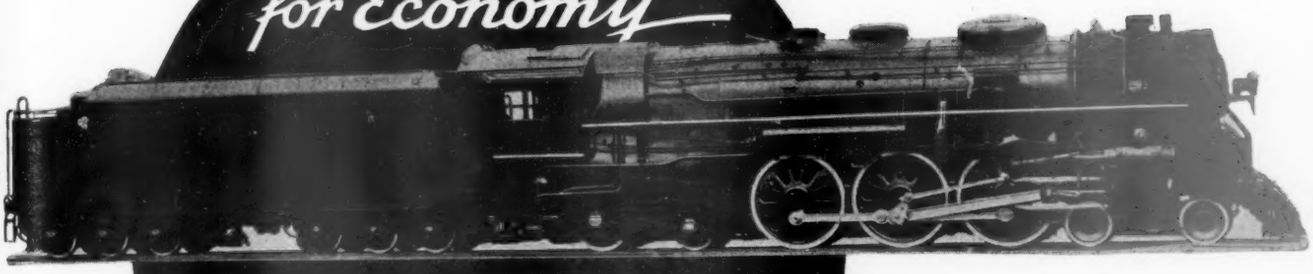
Equipped for Economy



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HUNT-SPILLER *Air Furnace* GUN IRON

with this company. **J. T. Hellmann,** district passenger agent at Miami, Fla., has been appointed general western passenger agent at Chicago to succeed Mr. Edwards.

Mr. Edwards has been in the service of the Southern continuously for 34 years. He was born on May 10, 1887, at Chaptico, Md., and was educated in public and private schools, later taking a business course at Washington, D. C. He entered the

Moffett

J. A. Edwards

service of the Southern on February 1, 1904, as a messenger in the general bookkeeper's office at Washington, and from that date until December 31, 1910, he served in various stenographic and clerical capacities at different points on the Southern. At the end of this period Mr. Edwards was appointed city passenger agent at St. Louis, Mo., being sent to Chicago as traveling passenger agent on March 1 of the same year. From January 15, 1918, to July 31 of the same year he was located at Hattiesburg, Miss., then being sent to Louisville, Ky., as division passenger agent. On March 1, 1920, Mr. Edwards was promoted to district passenger agent at Detroit, Mich., remaining at that point until September 1, 1925, when he was sent to Chicago as northern passenger agent. On October 21, 1931, he was made general western passenger agent, with the same headquarters, which position he was holding at the time of his recent appointment as assistant passenger traffic manager at Cincinnati.

Mr. Cary was born on November 28, 1874, at Augusta, Ga., and after a public school education he began his business career as cashier for a mercantile establishment at Augusta, Ga. Two years later he became connected with the Bradley Fertilizer Company, serving with this company as a clerk and stenographer in its office at Augusta until 1895. From April to October of the same year, he served as a stenographer with the International Exposition at Atlanta, Ga. At the end of this period he entered the service of the Southern and in May, 1898, he was appointed traveling passenger agent at Atlanta, being transferred to Macon, Ga., in December of the same year. In 1901, Mr. Cary was appointed Florida passenger agent with headquarters at Jacksonville, Fla., later serving as district passenger agent with the same headquarters. In 1904, he was sent to Washington, D. C., as chief clerk to the general passenger agent, and two years later he was advanced to assistant general passenger agent at the same point. In 1909, Mr. Cary was further promoted to general passenger agent, with the same headquarters, holding this position for the next 17 years. In 1926, he was transferred to Cincinnati. He has served as assistant passenger traffic manager at that point since 1931.

ENGINEERING AND SIGNALING

J. E. Vandling, division engineer of the Buffalo division of the Pennsylvania, with headquarters at Buffalo, N. Y., has been transferred in the same capacity to the Eastern division, with headquarters at Pittsburgh, Pa., succeeding **J. A. Schwab,** whose appointment as superintendent of the Logansport division was reported in the *Railway Age* of January 22.

E. H. Robinson, assistant signal supervisor on the Atchison, Topeka & Santa Fe at Amarillo, Tex., has been promoted to signal supervisor of the Plains and Slaton divisions, with the same headquarters, to succeed **Homer Guy,** deceased. **W. B. Ellis** has been appointed assistant signal supervisor at Amarillo, to succeed Mr. Robinson.

L. V. Lienhard, roadmaster of the Pueblo, Denver, Canyon City and Minnequa districts of the Colorado division of the Atchison, Topeka & Santa Fe, with headquarters at Pueblo, Colo., has been promoted to division engineer of the Oklahoma division with headquarters at Arkansas City, Kan., to succeed **Fred H. Frailey,** whose death on December 13 was reported in the *Railway Age* of January 8.

J. M. Fox, division engineer of the Chicago terminal division of the Pennsylvania, with headquarters at Chicago, has been transferred in the same capacity to the New York division, with headquarters at Jersey City, N. J., succeeding **R. H. Crew,** who has been appointed acting engineer maintenance of way, of the Eastern Pennsylvania division at Harrisburg, Pa. **L. E. Gingerich,** division engineer of the St. Louis branch, with headquarters at Terre Haute, Ind., has been transferred to the Chicago terminal division, to succeed Mr. Fox. **J. L. Cranwell,** assistant division engineer of the Fort Wayne, Ind., division has been appointed division engineer of the St. Louis branch, succeeding Mr. Gingerich.

F. L. Guy, division engineer of the Coast division of the Southern Pacific with headquarters at San Francisco, Cal., has been promoted to engineer maintenance of way and structures of the Pacific lines of this company, with the same headquarters, succeeding **P. T. Robinson,** who has retired. **T. W. Saul,** roadmaster at Fresno, Cal., has been promoted to division engineer of the Tucson division, with headquarters at Tucson, Ariz., succeeding **H. E. Stansbury,** who has been transferred to the Los Angeles division, with headquarters at Los Angeles, Cal., to replace **J. B. Dawson,** who has been transferred to the Coast division to succeed Mr. Guy.

W. Riseden, assistant division engineer at Bakersfield, Cal., has been promoted to division engineer of the San Joaquin division, with the same headquarters, to succeed **F. A. Bordwell,** who has been transferred to the Western division, with headquarters at Oakland Pier, Cal., to relieve **D. A. Porter,** who has retired. **L. E. Peterson,** roadmaster at Los Angeles, has been promoted to assistant division engineer at Bakersfield to succeed Mr. Riseden.

MECHANICAL

Henry M. Sherrard, mechanical inspector on the staff of the superintendent of motive power, Western lines of the Baltimore & Ohio, has been appointed master mechanic of the Monongah division, Eastern lines, with headquarters at Grafton, W. Va., succeeding **R. H. Cline,** resigned.

OBITUARY

Joseph B. Hutchinson, Jr., assistant to the general manager of the Eastern region of the Pennsylvania, at Philadelphia, Pa., died of a heart attack on January 28 at his home in Phoenixville, at the age of 61.

T. Hambley, general superintendent of the Algoma district of the Canadian Pacific, with headquarters at North Bay, Ont., died from a heart attack on January 26, following an illness of a few weeks. Mr. Hambley was 55 years old and had been with the Canadian Pacific for 34 years. After serving in various capacities he became master mechanic of the Algoma district at North Bay, Ont., and, in February, 1928, was appointed assistant superintendent of motive power of the Western lines, with headquarters at Winnipeg, Man. Mr. Hambley was appointed general superintendent of the Algoma district at North Bay in June, 1928, the position he held until his death.

C. E. Friend, former assistant general comptroller of the Canadian National at Montreal, Que., died on January 23 at Long Beach, Cal. Mr. Friend retired from the finance and accounting department of the C. N. R. in 1930 on account of ill-health. He was born at Brighton, England, in October, 1871, and served as secretary to the traffic manager of the Canadian Pacific at Winnipeg, Man., from January, 1894, until October, 1896, when he joined the Canadian Northern as stenographer to the superintendent at Winnipeg. He became accountant in June of the following year and in June, 1901, became auditor. In November, 1910, Mr. Friend was appointed general auditor and in November, 1918, became comptroller at Toronto, Ont. In August, 1920, his jurisdiction was extended to include the Grand Trunk Pacific, and in February, 1923, he became assistant general comptroller of the Canadian National System at Montreal, from which position he retired on pension in June, 1930.

Table of Freight Operating Statistics appears on next left-hand page

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UNITED STATES STEEL

Freight Operating Statistics of Large Steam Railways—Selected Items for the Month of November,

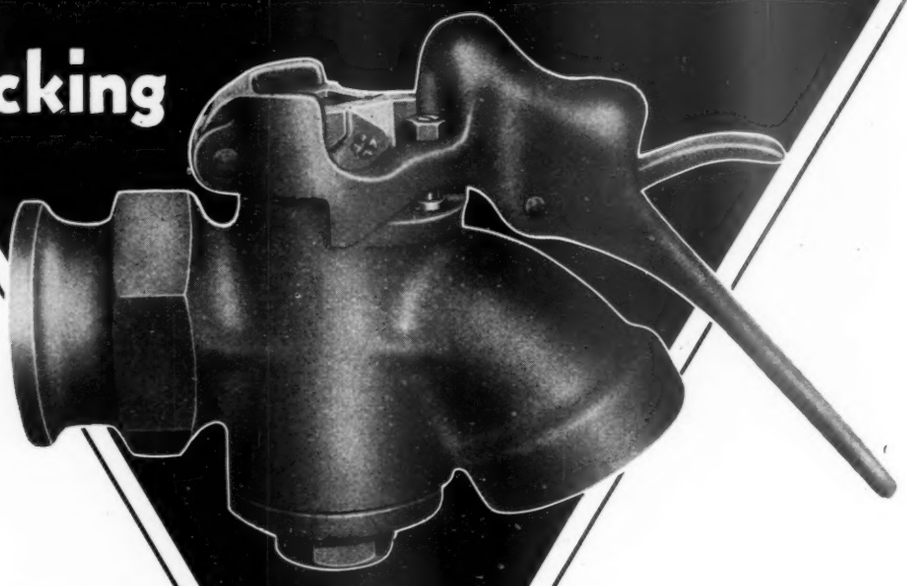
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (*thousands*)	Car-miles: Per cent loaded	Ton-miles (*thousands*): Gross, excluding locomotives and tenders	Ton-miles (*thousands*): Net, revenue and non-revenue	Number of road locomotives on line: Serviceable: Not stored	Serviceable: Stored	Unserviceable	Per cent unserviceable
New England Region:												
Boston & Albany....1937	374	130,676	135,672	8,765	2,737	63.6	158,711	54,509	62	7	22	24.2
1936	373	139,311	143,540	9,489	3,228	68.7	171,483	60,891	59	8	25	27.2
Boston & Maine....1937	1,941	258,360	285,893	22,197	8,658	66.9	494,145	179,662	126	7	112	45.7
1936	1,951	271,410	305,902	27,644	10,030	71.0	548,405	210,788	124	..	142	53.4
N. Y., New Hav. & Hartf..1937	2,006	321,611	394,117	24,084	10,721	66.3	585,292	217,983	183	22	64	24.1
1936	2,016	345,223	427,086	23,687	12,187	69.0	652,308	250,523	176	12	96	31.4
Great Lakes Region:												
Delaware & Hudson....1937	830	220,720	291,179	30,514	7,286	62.0	467,139	218,003	112	120	28	10.8
1936	831	229,552	313,198	36,774	8,400	68.0	522,574	259,146	101	120	41	15.6
Del., Lack. & Western....1937	983	358,262	396,340	51,227	11,565	66.7	688,936	273,017	122	17	82	37.1
1936	983	364,066	406,850	55,243	12,770	71.0	725,386	294,565	143	2	92	38.8
Erie (incl. Chi. & Erie)....1937	2,277	654,993	691,291	37,253	27,043	61.6	1,704,865	623,682	235	32	201	42.9
1936	2,298	722,872	767,577	40,414	32,044	66.8	1,917,565	745,619	227	22	224	47.4
Grand Trunk Western....1937	1,027	247,529	249,672	2,679	6,318	60.6	397,429	141,134	80	..	43	35.0
1936	1,027	267,994	270,992	3,253	7,273	64.8	434,109	157,268	81	..	58	41.7
Lehigh Valley 1937	1,290	326,907	358,342	45,528	12,208	63.0	785,029	326,418	131	6	136	49.8
1936	1,305	371,194	397,597	48,612	13,585	68.7	824,843	357,658	150	6	126	44.7
New York Central....1937	10,649	2,680,708	2,824,067	155,518	85,255	57.1	5,855,903	2,324,772	899	199	382	25.8
1936	10,793	2,866,017	3,032,845	194,687	97,273	60.4	6,359,394	2,682,540	951	80	483	31.9
N. Y., Chicago & St. Louis.1937	1,672	471,938	476,667	5,985	15,391	60.7	961,642	351,870	158	18	20	10.2
1936	1,672	499,691	504,315	7,633	17,462	64.8	1,030,037	403,977	165	3	25	13.0
Pere Marquette 1937	2,081	336,056	340,823	5,702	8,854	58.3	586,762	217,640	114	12	32	20.3
1936	2,081	396,121	410,598	5,357	10,612	62.1	674,637	255,908	126	..	27	17.6
Pittsburgh & Lake Erie....1937	234	65,997	68,458	16	2,617	57.4	227,492	123,725	29	19	24	33.3
1936	234	94,649	97,080	....	3,493	59.0	300,986	168,023	33	12	22	32.8
Wabash 1937	2,421	572,663	582,920	12,698	16,485	63.1	1,001,091	355,750	153	25	113	38.8
1936	2,434	606,352	617,323	13,393	18,623	67.8	1,063,305	388,138	133	35	135	44.6
Central Eastern Region:												
Baltimore & Ohio....1937	6,330	1,404,618	1,733,287	172,394	40,314	57.8	2,878,711	1,243,278	654	93	520	41.0
1936	6,366	1,577,100	1,930,128	201,769	47,944	62.6	3,324,833	1,540,181	670	54	567	43.9
Central of New Jersey....1937	678	148,923	167,289	33,464	4,666	59.4	328,217	154,119	77	5	70	46.1
1936	681	154,553	173,521	33,249	5,121	62.4	347,993	167,279	60	11	76	51.7
Chicago & Eastern Illinois..1937	931	180,427	180,653	2,972	4,402	60.4	300,354	126,012	53	..	50	48.5
1936	931	181,925	182,421	3,005	5,072	66.0	326,649	146,853	58	2	47	43.9
Elgin, Joliet & Eastern....1937	435	96,112	97,572	1,903	2,097	55.7	168,289	79,238	57	..	25	30.5
1936	434	103,750	104,969	1,847	2,649	59.9	210,437	107,368	56	..	29	34.1
Long Island 1937	393	32,710	32,963	15,071	324	50.5	24,931	8,756	33	10	6	12.2
1936	393	31,748	32,762	16,589	308	52.2	23,593	9,034	39	..	14	26.4
Pennsylvania System 1937	10,011	2,685,971	3,107,330	354,403	94,022	60.9	6,401,753	2,790,167	1,277	457	584	25.2
1936	10,034	3,137,815	3,610,052	402,121	111,219	62.4	7,629,960	3,476,489	1,469	186	683	29.2
Reading 1937	1,445	409,777	446,559	47,982	10,745	59.8	805,237	385,701	200	18	114	34.3
1936	1,449	437,562	474,964	54,361	12,519	63.8	897,835	443,603	208	44	88	25.9
Pocahontas Region:												
Chesapeake & Ohio....1937	3,050	830,611	869,499	38,178	34,696	52.7	3,031,015	1,603,054	383	56	109	19.9
1936	3,050	936,895	994,882	48,232	42,759	54.5	3,704,473	2,006,653	409	21	119	21.7
Norfolk & Western....1937	2,179	625,420	649,507	34,135	24,246	56.9	2,029,525	1,061,833	295	38	26	7.2
1936	2,183	702,843	745,905	37,948	29,271	57.9	2,506,724	1,342,653	269	46	47	13.0
Southern Region:												
Atlantic Coast Line....1937	5,074	582,686	584,346	8,290	12,853	58.6	738,221	249,047	240	40	99	26.1
1936	5,079	605,620	607,292	8,228	13,426	65.1	708,874	249,791	228	36	106	28.6
Central of Georgia....1937	1,886	240,937	242,458	3,128	4,672	63.6	283,632	106,793	102	..	19	15.7
1936	1,886	254,944	255,848	3,826	5,680	72.9	309,740	125,282	96	..	27	22.0
Illinois Central (incl. Y. 1937	6,541	1,410,936	1,419,031	26,860	35,652	58.4	2,431,096	983,909	659	35	163	19.0
& M. V.)....1936	6,556	1,689,183	1,698,279	31,846	41,247	63.2	2,683,813	1,130,053	686	12	188	21.2
Louisville & Nashville....1937	4,932	1,066,113	1,153,124	26,596	23,768	56.3	1,745,966	811,774	353	55	146	26.4
1936	4,942	1,238,042	1,359,369	35,064	29,136	58.4	2,123,841	1,024,975	374	5	187	33.0
Seaboard Air Line....1937	4,295	525,598	539,616	4,895	13,417	62.2	809,358	290,556	218	13	78	25.2
1936	4,295	503,022	528,609	4,747	13,565	67.7	777,881	293,346	230	6	95	28.7
Southern 1937	6,596	1,250,625	1,270,026	18,789	26,191	61.1	1,585,199	613,033	538	1	230	29.9
1936	6,596	1,320,381	1,340,139	21,508	29,783	66.3	1,706,078	685,257	487	23	276	35.1
Northwestern Region:												
Chicago & North Western..1937	8,388	943,844	983,459	26,805	24,283	59.6	1,577,574	582,840	377	139	190	26.9
1936	8,355	1,011,453	1,051,422	31,532	27,387	60.5	1,758,798	643,595	389	62	243	35.0
Chicago Great Western....1937	1,450	273,821	274,947	5,449	7,311	57.5	472,746	163,446	64	..	30	31.9
1936	1,458	307,398	310,161	13,542	8,829	60.0	552,992	194,509	66	1	23	25.6
Chi., Milw., St. P. & Pac...1937	11,043	1,297,903	1,356,362	49,793	33,006	59.6	2,161,042	851,453	522	28	130	19.1
1936	11,107	1,389,667	1,496,126	68,822	37,798	61.8	2,403,980	968,993	453	99	128	18.8
Chi., St. P., Minneap. & Om.1937	1,636	226,967	237,278	12,387	5,020	64.0	318,608	132,197	114	7	25	17.1
1936	1,637	220,782	232,257	11,225	4,997	63.1	314,144	127,060	86	34	25	17.2
Great Northern 1937	7,975	742,208	741,282	27,822	23,690	66.7	1,461,649	621,705	343	73	143	25.6
1936	7,997	846,361	848,085	33,284	28,185	64.2	1,821,754	795,669	355	60	144	25.8
Minneap., St. P. & S. St. M.1937	4,277	378,178	384,079	3,229	7,673	63.6	460,330	180,350	118	2	34	22.1
1936	4,273	376,530	387,848	5,637	8,737	67.3	508,760	210,451	117	..	32	21.5
Northern Pacific 1937	6,423	641,173	666,427	33,564	19,814	66.4	1,224,157	509,860	373	29	59	12.8
1936	6,429	727,597	803,824	48,658	23,008	67.0	1,378,979	576,137	370	4	70	15.8
Central Western Region:												
Alton 1937	912	202,134	213,062	1,878	4,153	58.0	275,473	108,314	67	..	32	32.3
1936	912	205,990	215,094	2,744	4,757	64.2	301,184	121,006	75	..	25	25.0
Atch., Top. & S. Fe (incl. 1937	13,537	1,926,292	2,058,278	92,370	52,651	60.2	3,391,086	1,104,986	650	36	253	26.9
G.C. & S.F. & P. & S.F.).1936	13,227	1,999,631	2,166,187	108,995	58,363	63.0	3,631,441	1,220,760	616	50	309	31.7
Chicago, Burl. & Quincy...1937	8,928	1,233,488	1,274,128	48,434	34,333	59.9	2,134,213	881,604	463	7	95	16.8
1936	8,899	1,426,074	1,488,257	62,359	37,520	62.5	2,282,911	966,068	455	..	89	16.4
Chi., Rock I. & Pac. (incl. 1937	8,110	1,165,291	1,172,157	6,392	25,304	59.5	1,607,948	601,257	383	38	203	32.5
Chi., Rock I. & Gulf)....1936	8,130	1,159,383	1,183,965	6,818	26,507	63.6	1,600,201	612,167	386	29	257	38.2
Denver & Rio Gr. Western.1937	2,570	349,325	393,930	49,071	8,519	62.5	537,440	211,383	170	12	13	6.7
1936	2,576	384,559	425,390	48,104	8,912	63.2	560,193	221,857	186	8	12	5.8
Southern Pac.—Pac. Lines.1937	8,605	1,435,254	1,563,009	177,264	45,893	61.9	2,878,286	955,675	631	17	158	19.6
1936	8,614	1,686,815	1,869,159	239,151	57,615	64.2	3,512,303	1,225,341	623	6	170	21.3
Union Pacific 1937	9,911	1,872,411	1,929,463	97,551	59,796	61.2	3,754,974	1,282,000	575	112	202	22.7
1936	9,918	2,150,961	2,224,430	114,152	68,126	64.8	4,112,733	1,457,822	622	39	206	23.8
Southwestern Region:												
Mo.-Kansas-Texas Lines ...1937	3,282	386,213	391,270	5,447	10,168	58.6	650,700	229,114	112	1	89	44.1
1936	3,282	415,328	421,209	6,936	11,017	60.9	686,686	244,988	98	29	78	38.0
Missouri Pacific 1937	7,147	1,214,431	1,253,958	29,895	32,996	58.9	**2,204,548**	837,000	412	41	87	16.1
1936	7,191	1,294,356	1,331,221	29,677	36,180	61.8	**2,311,120**	884,749	337	66	127	24.0
St. Louis-San Francisco....1937	4,847	751,077	756,657	10,046	14,503	58.3	952,978	367,774	274	38	75	19.4
1936	4,888	786,888	793,650	10,809	16,250	61.8	1,028,035	412,231	292	52	64	15.7
St. Louis Southw. Lines....1937	1,690	310,838	311,853	4,267	7,328	58.6	457,734	157,371	91	14	16	13.2
1936	1,733	274,046	275,633	3,560	7,308	68.3	413,248	158,803	103	7	7	6.0
Texas & New Orleans....1937	4,419	591,500	591,550	10,239	13,293	59.2	862,875	310,236	224	23	35	12.4
1936	4,415	622,706	625,775	7,058	15,171	66.8	919,286	360,063	229	16	51	17.2
Texas & Pacific....1937	1,932	320,359	320,359	1,586	8,547	56.6	563,749	188,868	95	5	80	44.4
1936	1,944	331,527	331,527	2,338	9,349	63.5	574,173	206,817	72	47	93	43.9

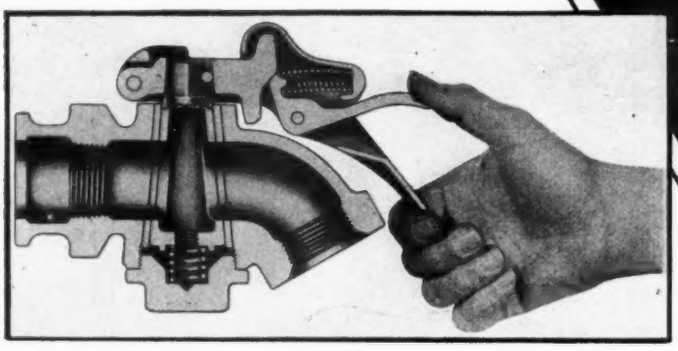
Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

1937, Compared with November, 1936, for Roads with Annual Operating Revenues Above $25,000,000

Region, road, and year	Number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile, excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive-miles per locomotive-day
New England Region:													
Boston & Albany 1937	2,132	3,625	5,757	27.3	20,660	1,225	421	19.9	302	23.8	4,858	173	56.2
1936	2,305	4,306	6,611	24.7	20,971	1,236	439	18.9	304	23.5	5,442	169	59.2
Boston & Maine 1937	7,783	6,235	14,018	13.4	26,673	1,921	699	20.8	407	29.3	3,085	102	45.7
1936	7,083	9,737	16,820	13.8	27,262	2,029	780	21.0	432	28.9	3,601	107	45.6
N. Y., New Hav. & Hartf. 1937	9,709	10,291	20,000	12.8	26,440	1,848	688	20.3	364	27.0	3,622	107	57.6
1936	9,734	13,612	23,346	14.8	27,096	1,926	740	20.6	370	26.1	4,142	108	59.6
Great Lakes Region:													
Delaware & Hudson 1937	8,188	3,118	11,306	3.9	29,584	2,124	991	29.9	641	34.5	8,755	108	44.0
1936	6,988	4,052	11,040	4.2	31,511	2,290	1,135	30.9	767	36.5	10,399	110	47.2
Del., Lack. & Western 1937	13,589	6,152	19,741	14.0	33,216	1,946	771	23.6	466	29.6	9,258	139	73.3
1936	12,498	7,131	19,629	18.1	33,397	2,017	819	23.1	500	30.5	9,989	134	69.0
Erie (incl. Chi. & Erie) 1937	18,653	13,046	31,699	5.3	43,740	2,622	959	23.1	630	44.4	9,130	102	57.5
1936	16,305	23,154	39,459	2.8	43,883	2,672	1,039	23.3	660	42.5	10,815	103	62.9
Grand Trunk Western 1937	5,293	5,835	11,128	14.6	30,320	1,614	573	22.3	393	29.0	4,581	103	75.4
1936	4,669	9,541	14,210	14.5	29,809	1,639	594	21.6	383	27.3	5,104	99	73.2
Lehigh Valley 1937	11,424	10,265	21,689	7.2	42,688	2,436	1,013	26.7	493	29.2	8,435	117	52.0
1936	10,066	11,332	21,398	6.6	38,781	2,254	977	26.3	561	31.0	9,136	132	56.4
New York Central 1937	96,911	57,490	154,401	17.2	36,778	2,208	877	27.3	492	31.6	7,277	108	75.1
1936	95,917	72,734	168,651	16.9	36,046	2,241	945	27.6	529	31.8	8,285	110	79.0
N. Y., Chicago & St. Louis 1937	7,788	6,492	14,280	2.7	36,857	2,041	747	22.9	811	58.4	7,015	96	88.7
1936	5,562	8,522	14,084	2.8	36,594	2,063	809	23.1	960	64.0	8,054	98	95.8
Pere Marquette 1937	9,930	6,491	16,421	3.8	27,290	1,748	648	24.6	453	31.6	3,486	97	81.4
1936	7,855	9,417	17,272	2.8	26,990	1,705	647	24.1	506	33.8	4,099	101	101.1
Pittsburgh & Lake Erie 1937	8,457	9,989	18,446	27.1	47,964	3,457	1,880	47.3	223	8.2	17,625	87	34.4
1936	11,238	11,841	23,079	33.1	42,796	3,188	1,780	48.1	234	8.2	23,952	91	48.5
Wabash 1937	14,201	9,022	23,223	5.6	35,659	1,766	628	21.6	520	38.2	4,898	121	72.3
1936	11,002	10,673	21,675	5.7	35,597	1,780	650	20.8	597	42.2	5,316	119	72.9
Central Eastern Region:													
Baltimore & Ohio 1937	61,844	20,845	82,689	13.1	27,213	2,079	898	30.8	488	27.4	6,547	149	53.8
1936	59,720	33,407	93,127	16.3	26,998	2,143	993	32.1	552	27.4	8,064	150	59.2
Central of New Jersey 1937	10,306	10,160	20,466	27.0	27,950	2,323	1,091	33.0	257	13.1	7,577	143	58.2
1936	10,290	11,692	21,982	29.5	26,777	2,356	1,133	32.7	254	12.5	8,188	149	64.3
Chicago & Eastern Illinois 1937	3,082	3,162	6,244	2.2	29,374	1,672	701	28.6	679	39.3	4,512	129	62.6
1936	2,340	3,822	6,162	7.6	31,658	1,811	814	29.0	794	41.6	5,258	124	60.9
Elgin, Joliet & Eastern 1937	8,885	2,267	11,152	4.3	16,641	1,807	851	37.8	228	10.8	6,072	128	57.1
1936	8,217	6,977	15,194	5.0	16,591	2,079	1,060	40.5	242	10.0	8,245	119	61.0
Long Island 1937	383	3,093	3,476	2.6	6,261	782	275	27.0	86	6.3	743	310	46.1
1936	563	3,382	3,945	2.6	5,851	764	293	29.3	80	5.3	767	321	46.2
Pennsylvania System 1937	192,268	59,850	252,118	15.2	35,215	2,424	1,056	29.7	370	20.4	9,290	124	56.5
1936	178,542	66,286	244,828	18.0	34,733	2,476	1,128	31.3	467	23.9	11,549	121	64.0
Reading 1937	25,084	10,296	35,380	12.0	25,192	1,971	944	35.9	367	17.1	8,897	143	54.3
1936	22,310	14,354	36,664	8.1	25,303	2,059	1,017	35.4	404	17.9	10,205	146	57.4
Pocahontas Region:													
Chesapeake & Ohio 1937	47,064	9,130	56,194	1.2	53,415	3,682	1,948	46.2	942	38.7	17,520	81	61.0
1936	38,903	13,094	51,997	1.0	53,616	3,999	2,166	46.9	1,254	49.1	21,931	79	70.5
Norfolk & Western 1937	41,129	4,403	45,532	1.3	49,368	3,294	1,723	43.8	848	34.0	16,243	105	69.1
1936	30,267	4,709	34,976	2.0	51,651	3,602	1,929	45.9	1,329	50.0	20,502	102	78.3
Southern Region:													
Atlantic Coast Line 1937	16,986	8,256	25,242	17.8	21,568	1,268	428	19.4	330	29.1	1,636	111	56.6
1936	18,189	8,826	27,015	21.3	20,417	1,173	413	18.6	310	25.6	1,639	114	60.0
Central of Georgia 1937	5,004	2,504	7,508	1.8	21,608	1,180	444	22.9	485	33.3	1,887	128	74.3
1936	3,179	3,905	7,084	3.1	22,224	1,220	493	22.1	591	36.7	2,215	127	76.6
Illinois Central (incl. Y. 1937	33,639	18,915	52,554	13.4	27,464	1,732	701	27.6	623	38.7	5,014	139	60.9
& M. V.) 1936	30,752	22,660	53,412	21.3	26,385	1,601	674	27.4	685	39.6	5,745	139	69.9
Louisville & Nashville 1937	39,515	9,515	49,030	11.0	24,900	1,641	763	34.2	580	30.2	5,486	138	76.6
1936	33,081	12,869	45,950	17.7	25,550	1,718	829	35.2	764	37.2	6,913	132	87.1
Seaboard Air Line 1937	11,345	5,782	17,127	2.2	25,383	1,569	563	21.7	555	41.2	2,255	119	65.1
1936	9,511	7,696	17,207	2.2	25,624	1,571	593	21.6	577	39.4	2,276	119	58.9
Southern 1937	20,602	18,628	39,230	9.9	21,928	1,275	493	23.4	521	36.4	3,098	152	59.3
1936	21,928	21,880	43,808	15.9	21,618	1,302	523	23.0	521	34.2	3,463	153	60.6
Northwestern Region:													
Chicago & North Western 1937	39,513	19,562	59,075	7.2	26,748	1,719	635	24.0	330	23.1	2,316	128	51.9
1936	34,291	22,999	57,290	6.4	26,809	1,763	645	23.5	367	25.8	2,568	126	55.9
Chicago Great Western 1937	2,540	3,277	5,817	2.4	31,227	1,731	598	22.4	855	66.6	3,757	137	106.0
1936	1,935	4,408	6,343	3.0	31,216	1,800	633	22.0	952	72.1	4,447	138	128.0
Chi., Milw., St. P. & Pac. 1937	46,890	17,437	64,327	2.4	27,213	1,672	659	25.8	449	29.2	2,570	128	76.1
1936	41,723	21,071	62,794	2.4	27,288	1,738	700	25.6	510	32.2	2,908	132	83.9
Chi., St. P., Minneap. & Om. 1937	4,164	5,087	9,251	8.0	18,636	1,422	590	26.3	483	28.6	2,694	119	61.8
1936	3,701	5,219	8,920	9.8	18,758	1,435	580	25.4	450	28.1	2,587	123	61.1
Great Northern 1937	37,989	10,037	48,026	4.8	28,565	1,982	843	26.2	424	24.2	2,599	124	51.6
1936	35,388	12,764	48,152	6.9	32,731	2,166	946	28.2	533	29.4	3,317	121	57.6
Minneap., St. P. & S. St. M. 1937	12,945	3,373	16,318	3.6	20,049	1,221	478	23.5	363	24.3	1,406	113	85.8
1936	12,263	5,181	17,444	3.7	21,341	1,359	562	24.1	399	24.6	1,642	110	88.3
Northern Pacific 1937	31,058	5,852	36,910	7.4	29,134	1,916	798	25.7	465	27.2	2,646	145	56.2
1936	26,738	7,281	34,019	8.8	28,850	1,901	794	25.0	555	33.0	2,987	155	70.1
Central Western Region:													
Alton 1937	2,589	6,113	8,702	11.0	31,576	1,374	540	26.1	412	27.3	3,959	134	77.2
1936	2,280	6,462	8,742	24.1	34,249	1,470	591	25.4	467	28.6	4,423	132	77.0
Atch., Top. & S. Fe (incl. 1937	74,134	14,515	88,649	7.9	33,118	1,765	575	21.0	424	33.5	2,721	123	81.3
G.C. & S.F. & P. & S.F.) 1936	61,525	15,019	76,544	9.2	33,411	1,822	613	20.9	534	40.6	3,076	126	82.9
Chicago, Burl. & Quincy 1937	28,545	14,771	43,316	6.3	29,825	1,737	717	25.7	659	42.8	3,292	127	84.7
1936	25,926	20,217	46,143	6.2	28,119	1,609	681	25.7	704	43.7	3,619	132	101.9
Chi., Rock I. & Pac. (incl. 1937	23,144	12,097	35,241	6.2	24,665	1,382	517	23.8	576	40.8	2,471	145	67.0
Chi., Rock I. & Gulf) 1936	21,524	14,143	35,667	7.8	24,650	1,383	529	23.1	558	38.0	2,510	144	62.4
Denver & Rio Gr. Western 1937	11,925	4,084	16,009	3.4	23,517	1,544	607	24.8	432	27.8	2,742	164	79.6
1936	11,528	4,261	15,789	4.8	22,311	1,461	579	24.9	453	28.8	2,871	175	81.6
Southern Pac.—Pac. Lines 1937	33,167	29,590	62,757	5.4	33,232	2,020	671	20.8	493	38.2	3,702	108	76.3
1936	30,690	30,108	60,798	7.2	33,322	2,100	733	21.3	672	49.2	4,742	109	92.7
Union Pacific 1937	41,394	20,198	61,592	12.5	41,183	2,021	690	21.4	669	51.0	4,312	121	79.9
1936	38,406	21,795	60,201	10.6	40,054	1,923	682	21.4	778	56.1	4,900	124	93.8
Southwestern Region:													
Mo.-Kansas-Texas Lines 1937	5,234	3,810	9,044	.6	31,637	1,688	594	22.5	810	61.3	2,327	89	71.0
1936	3,618	6,318	9,936	2.3	30,197	1,655	590	22.2	817	60.3	2,488	92	75.2
Missouri Pacific 1937	17,597	22,009	39,606	2.3	31,486	1,827	694	25.4	682	45.7	3,904	125	86.0
1936	14,057	25,493	39,550	2.6	31,036	1,797	688	24.5	738	48.8	4,101	127	92.6
St. Louis-San Francisco 1937	17,650	4,288	21,938	6.3	24,820	1,275	492	25.4	571	38.6	2,529	140	70.3
1936	15,197	8,872	24,069	7.1	24,796	1,313	527	25.4	584	37.2	2,811	141	69.2
St. Louis Southw. Lines 1937	2,677	3,379	6,056	2.5	27,058	1,477	508	21.5	792	62.9	3,104	100	93.8
1936	2,469	4,251	6,720	3.1	26,245	1,513	581	21.7	777	52.4	3,054	106	83.8
Texas & New Orleans 1937	7,419	12,270	19,689	4.8	25,448	1,471	529	23.3	526	38.1	2,340	97	77.5
1936	6,484	13,278	19,762	6.0	25,529	1,486	582	23.7	608	38.3	2,718	94	76.5
Texas & Pacific 1937	3,279	5,841	9,120	1.7	27,616	1,761	590	22.1	696	55.6	3,259	93	66.2
1936	2,543	6,116	8,659	2.5	26,744	1,738	626	22.1	787	56.1	3,545	95	58.4

Double Locking Angle Cock





Security Made Doubly Secure

The double locking mechanism, together with a better fitting socket and hinge portion, prevent loose movements and resultant wear, thus greatly extending the service life of handles. » »

THE standard self locking angle cock was designed so that the key can not be turned until the handle is raised. A further improvement is embodied in the new Double Locking Angle Cock. The handle cannot be raised by the fingers until a latch has been depressed by the thumb. This compulsory manual co-ordination of two distinct and opposing forces prevents the possibility of a single force, such as that applied by the foot or a swinging chain, from turning the handle. Maximum protection against unauthorized or unintentional opening of the cock is thereby assured. » » » » »

WESTINGHOUSE AIR BRAKE COMPANY

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